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CASEFILE

AIR QUALITY AEROMETRIC DATA FOR THE CITY OF CLEVELAND FROM 1967 TO 1970 FOR SULFUR DIOXIDE, SUSPENDED PARTICULATES, AND NITROGEN DIOXIDE

by Harold E. Neustadter, Robert B. King,

J. Stuart Fordyce, and John C. Burr, Jr.

Lewis Research Center

Cleveland, Obio 44135

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION . WASHINGTON, D. C. . MARCH 1972

| 1. Report No. NASA TM X-2496 | 2. Government Accession | on No. | 3. Recipient's Catalog | No. |
|--|-------------------------------------|---|------------------------|-------------------|
| 4. Title and Subtitle AIR QUALITY AE | ROMETRIC DATA | FOR THE CITY | 5. Report Date | |
| | | | March 1972 | |
| OF CLEVELAND FROM 1967 T SUSPENDED PARTICULATES | | · · | 6. Performing Organia | zation Code |
| 7. Author(s) | | | 8. Performing Organiz | ation Report No. |
| Harold E. Neustadter, Robert | B. King, J. Stuar | t Fordyce, | E-6635 | |
| and John C. Burr, Jr. 9. Performing Organization Name and Address | | | 10. Work Unit No. | |
| 9. Performing Organization Name and Address Lewis Research Center | | | 770-90 | |
| National Aeronautics and Space | Administration | | 11. Contract or Grant | No. |
| Cleveland, Ohio 44135 | · | <u> </u> | | |
| 12. Sponsoring Agency Name and Address | | | 13. Type of Report ar | |
| National Aeronautics and Space | Administration | | Technical M | |
| Washington, D.C. 20546 | · | | 14. Sponsoring Agency | Code |
| 15. Supplementary Notes | ···· | <u>.</u> | • | |
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| 16. Abstract | | | | |
| The NASA Lewis Research Cer | nter is assisting th | e City of Clevelan | d, Ohio, in its e | effort to |
| monitor its air pollution. This | ū | • | • | |
| and the supportive Lewis progr | | | | |
| Cleveland over the past 4 year | s are presented to | gether with some p | oreliminary stat | istical |
| analyses indicating in a semiqu | antitive manner t | he degree of air po | ollution existing | within the |
| boundaries of Cleveland. | | | | · |
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| 17. Key Words (Suggested by Author(s)) | | 18. Distribution Statement | | • |
| Air pollution | | 18. Distribution Statement Unclassified - 1 | | • |
| Air pollution Suspended particulate | | | | • |
| Air pollution | | | | • |
| Air pollution Suspended particulate Sulfur dioxide | | Unclassified - v | unlimited | 22 Price* |
| Air pollution Suspended particulate | 20. Security Classif. (of Unclassif | Unclassified - u | | 22. Price* \$3.00 |

AIR QUALITY AEROMETRIC DATA FOR THE CITY OF CLEVELAND FROM 1967 TO 1970 FOR SULFUR DIOXIDE, SUSPENDED PARTICULATES, AND NUTBOOFN DIOXIDE

PARTICULATES, AND NITROGEN DIOXIDE

by Harold E. Neustadter, Robert B. King, J. Stuart Fordyce, and John C. Burr, Jr.*

Lewis Research Center

SUMMARY

The NASA Lewis Research Center is assisting the City of Cleveland, Ohio, in its effort to monitor its air pollution. This report describes the Cleveland program of the past 4 years and the supportive LeRC program currently being developed. The data accumulated by Cleveland over the past 4 years are presented together with some preliminary statistical analyses indicating in a semiquantitive manner the degree of air pollution existing within the boundaries of Cleveland.

INTRODUCTION

In response to a request from the City of Cleveland, NASA Lewis Research Center has initiated a comprehensive investigation of trace elements and compounds in the air with the Cleveland Metropolitan area serving as a model system. Information derived from the ground based Cleveland sampling network and from aircraft light scattering measurements and sample collection will be used to study particle composition, concentration, size distribution, and character.

As warranted in this investigation statistical and mathematical analyses will be carried out. In this connection, procedures and soft-ware have been developed to store and manipulate large amounts of aerometric data. To test the suitability of the data processing techniques and also to provide an insight into the Cleveland air environment, these techniques were applied to existing air quality data for Cleveland. This report deals with the analysis of these data.

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CLEVELAND SAMPLING PROGRAM

The air sampling program of the Cleveland, Ohio, Air Pollution Control Division is currently in its fifth year. Twenty-four-hour samplings have been made of total suspended particulate (TSP) since January 1967 and of NO₂ and SO₂ since January 1968. (The sampling methods used are hi-vol, Jacobs-Hocheiser, and West-Gaeke sulfuric acid, respectively.) The geographic deployment of sampling sites is shown in figure 1. The meandering heavy line in the center of the city is the Cuyahoga River, about which is centered most of the region's heavy industry.

At present there are 20 stations monitoring the air, 14 of which monitor all three pollutants while stations O to T (as defined in the key of fig. 1) measure TSP only. Seventeen of these sites have been in operation for more than 3 years. (Stations B, D, K, and N have undergone relocation since their initial installation. Because of the proximity of the present to the former sites we have assumed that essentially the same environment has been measured throughout.) Currently, the air is sampled every third day, although the sampling frequency has varied over the 4 years and has been as low as once a week.

RESULTS AND DISCUSSION

The general environmental data analysis has included the collection, tabulation, and preliminary screening of existing air pollution data (1967 to 1970) provided by the Cleveland Air Pollution Control Division. This involved (1) transcribing the data to punch card, (2) tabulating the information by pollutant, site, and date, and (3) calculating and listing averages, means, deviations, minima, maxima, etc.

The examples cited herein emphasize TSP, in keeping with our primary interest in trace elements and compounds. However, a comprehensive tabulation of all the data (including readings at a number of currently discontinued sites) is contained in tables I to IV. The data from the 20 current monitoring stations were also recorded in graphical form on microfiche, which is available, on request from the authors. The reader may wish to note that the monitoring of TSP at the Cleveland Health Museum was initiated by HEW-NAPCA in 1957 (data reported in ref. 1) and has been used by them as representative of the center city urban environment of Cleveland, Ohio.

A typical result is shown in table III(a), which is the computer output summarizing suspended particulate monitoring in Cleveland, Ohio, for the year 1969. In addition, it contains some preliminary data screening listed at the far right for each day and at the bottom for the entire year. This must be considered a very preliminary screening of the data, and caution must be exercised in using this information. For example, the daily listings of maximum, minimum, and average are based on the specific set of read-

ings for each day. It is very likely that a direct comparison between different days will not be possible because the set of stations reporting data may not be the same on all days. Similarly, the need for using caution in interpreting the results applies to annual summaries at the bottom of the table. Distortions may have entered due to the variability through the year of the sampling frequency. In the first 6 months of 1969, samplings were taken only once a week and then only on Mondays (3/17 to 6/30) or Tuesdays (1/7 to 3/11). The remainder of the year, samples were taken more frequently and on other days of the week. This has the effect of giving less weight to winter and spring than to summer and fall, and more weight to Monday and Tuesday than to the remainder of the week.

Since most aerometric data appear to fit a log normal distribution (ref. 2), 1 we can use this information to obtain insight on yearly trends in magnitude and deviation. Figure 2 shows two plots of the observed data on log-normal probability plotting scale. The solid line indicates the plot of the sample cumulative distribution of all measurements (over 300). The data points present the sample cumulative distribution for the years 1967, 1968, 1969, and 1970. Any steady increase or decrease in the contaminant concentrations would be discernable as a vertical sequence of the data points representing those years. In the two cases shown there does not appear to be a clear overall 4-year trend. Figure 2(a) is for a station in the industrial valley, and the over-printing of the data points shows the observations following the same distribution for 1967 to 1970 at a rather high average level of TSP. The data points \(\sigma\) indicate the current State of Ohio ambient Air Quality Standards (i.e., levels not to be exceeded). (One Ohio standard is given as the geometric mean. For a log normally distributed population, the geometric mean is identical to the median. In general, for the Cleveland data the geometrical mean and the median differ by less than 5 percent.) Figure 2(b) represents a station in a residential neighborhood predominantly upwind from the industrial region. There appeared to be a trend toward clean air from 1967 to 1969, but this was reversed in 1970. The relatively short sampling period reported here does not permit us to distinguish between the onset of a long-term improvement and a short-term fluctuation. A complete set of log-normal curves contained on microfiche is available from the authors on request.

It would appear quite reasonable and indeed it is generally assumed in the air pollution literature (e.g., ref. 3) that a strong correlation exists amongst the various pollutants, this being particularly so as regards TSP and SO_2 which are both presumed to enter the atmosphere primarily from the burning of fossil fuels. Visual perusal of a graphical display of the original data can be qualitatively helpful in estimating the applicability of this assumption to a specific site. Figure 3 shows the complete data set for

¹This work also contains an excellent introduction to the theory of log normal distributions as applied to air pollution data.

1969 to 1970 at a residential area predominantly downwind of the industrial region. It can be seen that for most of the time TSP and SO_2 readings move up and down together and often are almost identical (e.g., days 1020 to 1090). However, at times they may move independently (e.g., days 1130 to 1148) or even in opposite directions (e.g., days 1215 to 1225).

Future work will consider these anomalies in aerometric data, will expand the program to include contour plotting, will include time series analysis to examine the data from seasonal variations and long-term trends, will determine the influence of wind direction, precipitation, etc., and will attempt to correlate the results with levels of industrial activity and acute disease incidence.

Lewis Research Center,

National Aeronautics and Space Administration, Cleveland, Ohio, November 10, 1971, 770-90.

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- 2. Larsen, Ralph I.: A Mathematical Model for Relating Air Quality Measurements to Air Quality Standards. Office of Air Programs Publication No. AP-89, 1971.
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TABLE I. - 1967 24-HOUR-SAMPLING OF SUSPENDED PARTICULATE AIR-POLLUTION DATA (IN $_{\mu g/m}^3$) for Cleveland, ohio

| 37. | 157 157 | 818 | 901 | 107 | 202 | 1E ' | 151 | 117 | 122 | 154 | 110 | 135 | 113 | 136 | 138 | 17 4 18 6 | 96 | 26 | ≠ 2. | 127 | |
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| A.F RHD H.S | 97 | 57 | 11 | 63 | 11 | 11 | 16 | 0 | 0 | ٥ | 4 | 56 | 0 | ٥ | 0 | 59 | 0 | 0 | 0 | 110 | 0 |
| JOH ADM H. S | 225 | 0 | 0 | 83 | 101 | 149 | 134 | 95 | 28 | 113 | 9 | 66 | 9 | 81 | 145 | 82 | 0 | 0 | 0 | 111 | 0 |
| F13 ST4 =23 | 181 | 105 | 125 | 144 | o | 169 | 207 | 202 | 06 | 144 | 100 | 236 | 120 | 160 | 145 | 0 | 103 | 109 | ٥ | 137 | 180 |
| ALM CHL | 66 | 65 | 82 | 88 | 87 | 85 | 119 | 74 | 43 | 101 | 78 | 101 | 0 | 85 | 127 | 58 | 54 | 144 | 111 | 101 | 102 |
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| JFK H. S | 179 | 63 | 0 | 99 | 49 | 101 | 83 | 16 | 0 | 0 | 0 | 83 | 52 | 14 | 170 | 18 | 0 | 0 | 141 | 103 | 269 |
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| GEJ WAS ELE | 187 | 67 | 82 | 110 | 93 | 7, | 128 | 46 | 0 | 0 | 187 | 19 | 82 | 110 | 4,2 | 128 | 46 | 0 | 0 | 0 | 0 |
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| FIR STA =19 | 195 | 128 | 0 | 506 | 0 | 353 | 357 | 179 | 212 | 149 | 180 | 224 | 295 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FIR STA =13 | ٥ | ာ | 0 | ٥ | 0 | 0 | 0 | 0 | 260 | 326 | 170 | 238 | 256 | 347 | 148 | 168 | 163 | 151 | 0 | 220 | 0 |
| EST BAK REC | Ŷ | P | 0 | 9 | 9 | Ŷ | 0 | P | ° | ° | 9 | Ŷ | Ŷ | Ŷ | • | Ŷ | 9 | 9 | 9 | ٠ ٢ | Ŷ |
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| COL #00 H.S | 133 | 16 | 120 | 118 | 117 | 120 | 0 | 95 | 80 | 134 | 88 | 170 | 55 | 129 | 0 | 95 | 9 | 39 | 121 | 44 | 0 124 |
| CLE PNE TOO | 0 | 66 | -0 107 120 | -0 113 118 | -0 122 117 | -0 197 120 | 149 | 215 | -0 145 | -0 146 134 | -0 117 | -0 131 170 | 74 | -0 115 129 | -0 215 | 95 | -0 112 | -0 150 | -0 154 121 | 0 | 0 |
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| BKL | 156 | 46 | 95 | 120 | 113 | 127 | 0 | 66 | 110 | 137 | 137 | 0 | 0 | 115 | 0 | 82 | 0 | 51 | 0 | 0 | 441 |
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| 4 0. □ | DATE 1-5+-0 | 1- 7* | 1-10+ -6 | 1-12+ -0 | 1-14* -0 | 1-18* -0 | 1-20* -0 | 1-25* | 1-28+ -0 | 2- 1+ -0 | 2- 4* | 2- 8* | 2-11+ -0 | 2-15* -0 | 2-18# -0 | 2-22+ -0 | 2-24* -0 | 2-28* | 3- 3+ -0 | 3- 8 | 3-11+ -0 |

TABLE I. - Concluded. 1967 24-HOUR-SAMPLING OF SUSPENDED PARTICULAR AIR-POLLUTION DATA (IN µg/cm³) FOR CLEVELAND, OHIO

| 116 | 137 | 113 | 126 | 2002 | 114 | 171 | 165 | 146 | 78 4 2 7 9 | 82 | 32 | 143 | 82 | 103 | 124 | 80 | 73 | 111 | 153 | 65 | 161 | 147 | 136 | 189 | 16 | 146 | 134 | 501 | 174 4 |
|----------|--------|--------|--------|--------|------------|----------|-------------|--------|------------|------------|----------|-----------|--------|-----------|-----------|-----------|-----------|-----------|---------|-----------|------------|---------------|---------------|--------|-----------|-----------|-----------|----------|-------|
| 133 | 101 | 6, 4 | 167 | 89 | 69 | 10503 | , 92 , 7 | 5, 46 | ۾ ۾ | ٦٥ | o, | , 6, | 133 | 27 | 163 | 153 | , 6, | 130 | 238 | 104 | 165 | 151 | 0 | 185 | 75 | 204 | 129 | 156 | Ě |
| 29 | 122 | 132 | 121 | 208 | 111 | 145 | 164 | 154 | 89 | 104 | 57 | 144 | 58 | 139 | 102 | 19 | 79 | 96 | 173 | 67 | 186 | 122 | 141 | 95 | 126 | 101 | 120 | 0 | |
| 153 | 8 2 | 113 | 9.6 | 231 | 105 | 37.8 | 0 | 279 | 52 | 3 | 45 | 135 | 148 | 72 | 115 | 54 | 9 | 272 | 124 | 20 | 112 | 179 | 213 | 132 | 102 | 128 | 95 | 427 | |
| 4 | 118 | 121 | 123 | 222 | 120 | 126 | 139 | 129 | 89 | 80 | 62 | 170 | 55 | 127 | 113 | 196 | 42 | 85 | 183 | 55 | 153 | 121 | 101 | 201 | 44 | 991 | 150 | 145 | |
| 96 | 123 | 99 | 0 | 149 | 78 | 153 | 179 | 117 | 45 | 25 | 39 | 86 | 81 | 51 | 9 | 5 8 | 32 | 80 | 16 | 39 | 0 | 109 | 95 | 179 | 88 | 96 | 70 | 189 | |
| 2 | 137 | 150 | 0 | 270 | 140 | 159 | 166 | 169 | 90 | 81 | 95 | 102 | 70 | 124 | 331 | 73 | 125 | 108 | 161 | 9 | 174 | 205 | 139 | 235 | 16 | 192 | 131 | 216 | |
| ? | P | P | Ŷ | Ŷ | Ŷ | Ŷ | 9 | Ŷ | Ŷ | ° | Ŷ | Ŷ | 9 | 0 | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ° | ٩ | |
| P | 9 | P | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | ٩ | Ŷ | Ŷ | o | 0 | Ŷ | ٥ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | o | ٩ | |
| 7 | o | P | Ŷ | 9 | ٩ | 9 | ٩ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | ٩ | Ŷ | ° | የ | |
| 2 | 9 | P | ٩ | ٩ | Ŷ | 0 | ٩ | P | ٩ | Ŷ | Ŷ | o | 0 | ° | o | 9 | 9 | o I | ٩ | Ŷ | ٥ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٥ | Ŷ | |
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| ccl | 114 | 69 | 83 | 140 | 83 | 152 | 506 | 108 | 38 | 54 | 38 | 35 | 74 | 28 | 49 | 35 | 37 | 11 | 85 | 43 | 119 | 87 | 122 | 186 | 84 | 96 | 0 | 176 | |
| · | 0 | 104 | 66 | 185 | 88 | 141 | 128 | 140 | 153 | 29 | 21 | 107 | 9 | 46 | 16 | 64 | 55 | 85 | 112 | 4,4 | 149 | 108 | 104 | 210 | 62 | 134 | 117 | 152 | |
| 0 | 163 | 135 | 173 | 250 | 122 | 143 | 151 | 151 | 98 | 82 | 85 | 198 | 63 | 6 | 114 | 18 | 7. | 66 | 651 | 25 | 167 | 170 | 0 | 210 | 81 | 176 | 135 | 207 | |
| † 0 | 162] | 94 | 74 | 0 | 137 | 154 | 199 | 107 | 43 | 6 8 | 88 | 95 | 91 | 54 | 62 | 32 | 45 | 7.4 | 103 | 0 | 100 | 96 | 109 | 186 | 103 | 105 | 78 | 213 | |
| - - | o o | P | P | ٩ | Ŷ | 9 | 9 | P | Ŷ | Ŷ | 9 | 9 | o | ٩ | ٩ | 9 | Ŷ | o | 9 | 9 | P | Ŷ | P | · • | P | P | ٩ | P | |
| + | 111 | 35 | 90 | 177 | 95 | 90 | 16 | 521 | 41 | 58 | 8 | 6 | 28 | 99 | 80 | 20 | 45 | 73 | 86 | 34 | 126 | 87 | 95 | 188 | 19 | 0 | 101 | 134 | |
| ? | o o | 9 | ٥ | 0 | 9 | 0- | 9 | 0 | 9 | Ŷ | P | 9 | Ŷ | ٥ | 9 | 0 | ? | 9 | 0 | o P | P | ° | Ŷ | 9 | o | Ŷ | 9 | P | |
| > | 145 | 10 | 0 | 66 | 73 | 139 | 145 | 100 | 04 | 46 | 20 | 98 | 48 | 99 | 96 | 54 | 41 | 69 | 16 | 04 | 106 | 101 | 105 | 0 | 82 | 0 | 85 | | |
| - | 9 | P | 9 | 0 | ٥ | 0 | 0 | o | 9 | o | 9 | Ŷ | Ŷ | 0 | o | Ŷ | 9 | 9 | 9 | • | 9 | Ŷ | P | 9 | 0 | 0 | P | 9 | |
| 175 | 215 | 143 | 172 | 302 | 122 | 188 | 169 | 208 | 95 | 120 | 46 | 195 | 82 | 160 | 122 | 80 | 16 | 123 | 224 | 49 | 163 | 238 | 162 | 273 | 86 | 174 | 202 | 251 | |
| 128 | 214 | 255 | 220 | 300 | 251 | 0 | 594 | 247 | 200 | 215 | 544 | 333 | 88 | 291 | 272 | 128 | 0 | 155 | 0 | 110 | 313 | 267 | 141 | 0 | 95 | 0 | 313 | 0 | |
| P | 9 | 9 | Ŷ | 9 | P | 9 | P | Ŷ | 9 | Ŷ | Ŷ | 0 | 9 | 0 | 9 | P | o | P | 0 | 9 | ٩ | Ŷ | ٩ | Ŷ | 9 | Ŷ | P | ٩ | |
| ? | P | P | 0 | ٥ | 0 | 0 | 0 | Ŷ | 0 | o I | Ŷ | P | 0 | Ŷ | 9 | 9 | Ŷ | 0 | 0 | 0 | 96 | 136 | 122 | 0 | 102 | 105 | • | 0 | |
| ç Q | 144 | 105 | 86 | 211 | 116 | 130 | 118 | 104 | 49 | 23 | 65 | 161 | 99 | 09 | 86 | 33 | 99 | 82 | 132 | 38 | 643 | -0 160 146 13 | -0 143 104 12 | 117 | 79 10 | 146 10 | 125 | 151 0 | |
| <u>.</u> | 157 | 0 | 152 | | -0 128 116 | | 500 | | 86 | 707 | 19 | 140 | 96 | 9+1 | 118 | 16 | 96 | 66 | | 16 | -0 191 143 | 091 | [43 | • | 86 | 0 | 170 125 | 0 | |
| ? | 9 | 9 | -0 152 | -0 256 | Ŷ | -0 195 | -0 200 | -0 157 | Ŷ | -u 105 | P | -0 140 | Ŷ | -0 146 | -0 118 | Ŷ | P | P | -0 163 | ° | 9 | Ŷ | P | Ŷ | P | ° | P | Ŷ | |
| 211 | 145 | 53 | 901 | 121 | 001 | 164 | 272 | 133 | 11 | 85 | 09 | 8+1 | 103 | 63 | 81 | 64 | 70 | 60 | 165 | 4 | 841 | 961 | 125 | 961 | 132 | 561 | 93 | 0 | |
| -2 | - | -3 123 | -0 106 | -0 151 | -0 100 | -5 | -3 272 | -0 133 | ç | ç | ç | -0 148 | -0 103 | ? | ç. | ç | -0 101 | -0 100 | 9 | ? | -0 148 | -0 136 | -0 125 | -0 196 | -0 132 | -0 135 | • | ç | |
| | o | 9 | 0 | 0 | 0 | 346 | 0 | 0 | 0 | 0 | 66 | 692 | 0 | 145 | 941 | 520 | 162 | 90; | 197 | 118 | 888 | 190 | 183 | 0 | 136 | 224 | 891 | 0 | |
| 8-23* -0 | 8-26* | 8-30* | - 2* | • 9 - | * | 9-13+346 | 9-16 | 9-20• | 9-23• | 9-27 | 9-30- 99 | 10- 4+269 | 10- 7• | 10-11-142 | 10-14+146 | 10-18+220 | 10-25-162 | 11- 1*206 | - 8*267 | 11-15+118 | 11-22*288 | 11-29*190 | 12- 2+287 | • 9 - | 12- 9*136 | 12-13+224 | 12-16-168 | 12-20* 0 | |
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| 12-30*248 -3 113 -0 129 108 102 -0 163 167 -0 90 -0 74 -0 82 142 153 85 -0 -0 -0 -0 -0 148 80 0 149 65 110 122 65 248 | 248 | -5 11 | 13 | ė ė | 29 1(| 08 11 | - 20 | -0 1 | 63 1 | | o. | ī o | 0 | Ϊ • | в 0 | 12 14 | 15 | <u>8</u> |) - | 0 | P | 0 | Ŷ | 148 | 80 | 0 | 149 | 65 | 110 | 02 230 122 65 248 | |
| N O | 19 | 0 64 | | 0 61 | | 49 | σ. | 0 | 55 | 8 0 55 63 0 61 0 60 0 69 62 63 57 0 0 0 0 44 68 36 48 52 50 | 9 | - | 9 | 0 | 9 | 9 | 9 | e S | · | 0 | 0 | 0 | 0 | 4 | 89 | 36 | 48 | 52 | . 50 | | |
| AVG | 201 | 0 133 | | ·i | 48 10 | 99 11 | 50 | 0 2 | 22 1 | 0 148 109 105 0 222 186 0 90 0 94 0 99 143 113 89 0 0 0 0 144 88 122 151 124 122 | 6 | ٥ | 6 | 4 | 0 | 19 14 | i3 11 | έο En | 6 | 6 | 0 | 0 | 0 | 144 | 80 80 | 122 | 151 | 124 | 122 | | |
| N I | 66 | 0 49 | | ٥ | 0 67 33 | | 69 | 0 | 62 | 69 0 79 64 0 24 0 34 0 32 52 28 35 0 0 0 0 0 65 29 44 28 57 26 | 0 2 | 4 | 9 | 4 | ω. | 2 2 | 2 2 | ές Ές | 2 | 0 | 0 | 0 | 0 | 65 | 5 5 | 4 | 28 | 57 | . 56 | | |
| MAX | 346 | 3 298 | | 0 | 95 21 | 16 1 | 36 | 0 3 | 555 | 0 295 219 136 0 355 357 0 210 0 269 0 213 265 225 206 0 0 0 0 0 331 189 240 427 249 238 | 0 21 | 0 | 0 26 | o | 0 21 | 3 26 | 5 22 | 5 20 | 9 | c | 0 | 0 | 0 | 331 | 189 | 240 | 427 | 249 | , 238 | | |
| MEAN | 190 | 0 123 | | 0 1 | 0 139 101 | 11 10 | 93 | 0 2 | 1 60 | 103 0 209 174 0 83 0 86 0 91 134 104 80 0 0 0 0 0 133 81 112 129 117 109 | 8 | m | 8 | مِ | 6 | 11 13 | 14 10 | 6 0 | 0 | 0 | 0 | 0 | 0 | 133 | 18 | 112 | 129 | 111 | 109 | | |
| 9 098 | 68.2 | _ | စ္ | 54. | , to. | 19. | , 9 | 2 | 67 | 0. 40.9 0. 67.1 37.4 44.0 39.8 43.1 0. 0. 0. 38.4 89.4 50.9 53.8 54.2 19.8 70.2 0. 0. 0. 0. 48.3 40.4 0. 0. 59.0 49.9 44.3 | 37. | ٠ • | 44. | | 39. | 8. 8. | 43. | 1 40• | • • | ċ | • | ċ | • | 59.0 | 38. | 49.9 | 89.4 | 44.3 | 50.9 | | |

NOTE ZERO IS NOT A MEASURED VALUE. IT INDICATES AN INVALIDATED READING.
MINUS ZERO IS NOT A MEASURED VALUE. IT INDICATES A NON-OPERATING STATION.
NUM-AUMBER OF READINGS OBTAINED DURING YEAR
AVG=ARITHMETIC AVERAGE
MEAN-SEOMETRIC AVERAGE
MEAN-SEOMETRIC MEAN
SGD=STANDARD DEVIATION WITH DIVISOR OF (N-1)

TABLE II. - 1968 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $_{\mu g/m}^3$) for CLEVELAND, OHIO

(a) Suspended particulate

| บะง | AVG MIN MAX 8 132 | 6 | ຸ້ຊ | 109 252 0 108 | 2 0 | ۰٦, | 3 6 | 5 133 | 4 9 | | (3.250 8.106 | າີເ | , 7 | ຊີ: | 15 c | ຼິ | 6 98 | - | ຸ້ | , , | , ş | |
|---|-------------------------|----------|----------|------------------|---------|----------|---------|---------------|----------|----------|-----------------|------------|------------|----------|---------------|---------------|----------|---------------|---------------|------------|----------|--|
| A PT | 12 | 66 1 | 6 188 | 9 130 | 1 63 | 2 | 80 | 13 | 06 2 | | 11 | 3 26 | 3 18 | æ | 2 150 | 0 237 | · ~ | 9 133 | 0 15 | C 127 | 4 | |
| t FIF | 144 | 8 10 | 78 | δ U | 111 | 1 122 | 22 | 9 136 | 82 | 7 17 | 9 107 | 3 23 | 5 37 | 8 127 | 5 156 | 9 41 | 0 11(| 0 11 | о О | | 26 9 | |
| 4 4 2 | 5 102 | 0 | 145 | œ | 18 | 22 | 524 | 00 | 54 | 5 21 | 9 | 13 | 41 | 8 18 | 13 | 30 | | 9 | 12 | 101 | 9 | |
| BEN DCT | 15 | | • | . 95 | 18 | 73 | 161 | | 84 | 6 | 0 | 180 | 271 | 7 | 122 | 417 | 89 | 9 | 106 | 286 | 9 | |
| TSH S | 89 | 8 | 124 | 7 | 63 | 88 | 130 | 61 | 4 | ٥ | 53 | 66 | 197 | 69 | 117 | 0 | 0 | 103 | 120 | 56 | 20 | |
| CLE | Ó | 160 | 236 | 185 | 95 | 129 | 230 | 158 | 105 | 162 | 121 | 219 | 339 | 117 | 201 | 371 | 16 | ٥ | 234 | 119 | 114 | |
| PS0 PR0 | 0 | 9 | Ŷ | Ŷ | 9 | ٩ | 0 | ٩ | ٩ | Ŷ | Ŷ | ٩ | î | Ŷ | Ŷ | Ŷ | P | Ŷ | ٩ | 9 | P | |
| GR E | ٩ | 9 | ٩ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | ٩ | P | Ŷ | Ŷ | 9 | Ŷ | Ŷ | Ŷ | 9 | P | |
| SVN BLD | ٩ | ٩ | ٩ | ٩ | ٩ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Õ | Ŷ | Ŷ | P | 9 | ٩ | |
| SUP EDU CEN | 0 | P | 0 | Ŷ | ٩ | Ŷ | ٩ | Ŷ | ٩ | 9 | P | Ŷ | • | 9 | 9 | 9 | ن ا | 9 | 0 | 9 | P | |
| ST. JSP H.S | 9 | 9 | 9 | Ŷ | Ŷ | ٩ | ٩ | ٩ | Ŷ | Ģ | 9 | Ŷ | ٩ | ٩ | ٩ | 9 | ٩ | 9 | 0 | 0- | 9 | |
| # 55 ° F | 103 | 73 | 136 | 0 | 0 | 73 | ٥ | 0 | 65 | 0 | 63 | 110 | 276 | 138 | 86 | 369 | 125 | 66 | 92 | 58 | 51 | |
| ADH ADH S.S | 128 | 58 | 217 | 9 | 53 | 68 | 137 | 85 | 129 | 87 | 0 | 66 | 197 | 69 | 117 | 0 | 0 | 103 | 120 | 0 | 63 | |
| F13 STA =29 | 145 | 114 | 193 | 143 | 66 | 46 | 244 | 128 | 102 | 152 | 123 | 230 | 192 | 124 | 180 | 276 | 14 | 189 | 195 | 134 | 87 | |
| F.E.E. | 90 | 83 | 141 | 81 | 112 | 80 | 198 | 75 | 55 | 0 | 89 | ٥ | 210 | 88 | 140 | 150 | 0 | 114 | 101 | 65 | 4.7 | |
| P.L DNB ELE | 9 | 9 | ٩ | Ŷ | 9 | Ŷ | Ŷ | ٩ | 9 | 9 | Ŷ | 9 | ٩ | 9 | 9 | 9 | 9 | 9 | 9 | 9 | Ŷ | |
| JFK F.S | 118 | 53 | 133 | 62 | 48 | 62 | 144 | 19 | 57 | 73 | 0 | 145 | 250 | 62 | 85 | 299 | 43 | 93 | 95 | 0 | 0 | |
| HR V YAR | Ŷ | 9 | Ŷ | ٩ | 9 | 9 | 9 | 9 | 9 | P | Ŷ | 0 | ° | Ŷ | 9 | Ŷ | ° | 0 | 0 | 9 | ° | |
| GEO WAS ELE | 93 | 99 | 109 | 63 | 43 | 0 | 191 | 88 | 51 | 102 | 58 | 111 | 186 | 44 | 83 | 180 | 55 | 152 | 101 | 53 | 58 | |
| GR.Y | 0 | 9 | 0 | 0 | Ŷ | 0- | P | 0 | Ŷ | Ŷ | Ŷ | 9 | Ŷ | 9 | 0 | 0 | Ŷ | Ŷ | P | 0 | o · | |
| FIR STA =19 | 151 | 108 | 152 | 125 | 104 | 0 | 272 | 199 | 142 | 191 | 113 | 252 | 279 | 120 | 208 | 0 | 0 | 345 | 244 | 131 | 141 | |
| FIR STA | 261 | 174 | 252 | 288 | 100 | 0 | 566 | 350 | 222 | 224 | 298 | 373 | 382 | 187 | 293 | 580 | 132 | 217 | 303 | 189 | 167 | |
| EST BRK REC | Ŷ | 9 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | 0 | Ŷ | 0 | 0 | 156 | 92 | 0 | 38 | 100 | 79 | 62 | 46 | |
| CEC CEC | 104 | 85 | 117 | 83 | 83 | 86 | 222 | 100 | 56 | 143 | 69 | 140 | 218 | 19 | 104 | 154 | 0 | 143 | 137 | 06 | 96 | |
| COL W00 H.S | -0 158 137 10 | 46 | 191 | 116 | 74 | 88 | 214 | -0 167 155 10 | 87 | 0 14 | 0 | 281 172 14 | 479 180 21 | 96 | -0 148 207 10 | -0 770 309 15 | 11 | -0 162 133 14 | -0 149 144 13 | 108 | 49 | |
| CL E PNE TOO | 158 | -0 121 | 0 | 95 | -0 108 | 106 | -0 245 | 167 | 122 | 186 | 111 | 281 | 419 | -0 126 | 148 | 770 | -0 154 | 162 | 149 | -0 187 108 | 95 | |
| CLE HLT | P | Ŷ | 9 | ٩ | 9 | -0 106 | P | Ŷ | ۹. | ٩ | Ŷ | Ŷ | P | Ŷ | Ŷ | Ŷ | Ŷ | 0 | Ŷ | 9 | 우 | |
| BKL YMC | 117 | 46 | 0 | 19 | 201 | 102 | 322 | 124 | 22 | 250 | 88 | 153 | 323 | 250 | 123 | 455 | 151 | 190 | -0 144 | 96 | 93 | |
| A SEL | -0 117 | ç | ٥ | ç | P | -0 105 | P | -2 124 | ç | ? | P | -0 153 | 0 | -0 250 | -0 123 | -0 455 | -0 151 | -0 100 | P | 9 | 9 | |
| AIR AJB BKL CLE POL JAS YMC HLT OFC MUS | DATE 1- 3*162 | 1- 6*114 | 1-10-174 | 1-20+102 | 1-24* 0 | 1-31+274 | 2- 7* 0 | 2-14*151 | 2-21+175 | 2-24+232 | 2-28*142 | 3- 4*297 | 3- 7*470 | 3-11+216 | 3-14*255 | 3-18*784 | 3-21+152 | 3-25*467 | 3-28*227 | 4- 1+341 | 4- 4*237 | |

TABLE II. - Continued. 1968 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $_{\mu g/m}^3$) for Cleveland, Ohio

(a) Concluded. Suspended particulate

| 79 158 | 118 302 | 164 | 145 | 135 | 125 | 114 | 168 | 57 | 124 | 19 | 99. | 134 | 85 | 164 | 115 | 147 | 121 | 206 | 80 2 | 131 | 157 | 5, 7 | 74 | 176 405 | 154 | 113 | 184 | 114 | 120 263 |
|-----------|------------|------------|--------------|------------|----------|----------|------------|----------|----------|------------|-----------------|----------|----------|------------|-----------|------------|-----------|------------|--------|--------|------------|-----------|-----------|------------|------------|-----------|------------|-----------|------------|
| 0 1, | % 66 | 18 | 57 73 | 111 | 152 | 30.2 | 204 | °° | 87 87 | , * | 87 ⁸ | 93 | 69 | 16 5 | 96 | , 64 | 81 | 65 | 44 | 5 | 133 | 32 | 110 | 127 127 | 148 | 99 | , , | 55 | 24 - 64 |
| 0 | 26 1 | 121 | 100 | 120 1 | 94 1 | 105 | 162 2 | 19 | 47 | 20 | 110 | 121 | 0 | 38 1 | 97 1 | 143 1 | 43 | 111 | o | 0 | 46 1 | 59 | 79 1 | 73 | 29 | 81 | 60 | 90 | 1 50 |
| 111 | 121 | 311 1 | 136 1 | 335 1 | 309 | 220 1 | 139 1 | 63 | 297 | 23 | 223 1 | 318 1 | 63 | 405 1 | 282 | 134 1 | 132 1 | 604 2 | 95 | 0 | 22 4 1 | 0 | 43 | 405 1 | 190 1 | 292 | 0 2 | 0 | 132 1 |
| | 0 | 0 | 92 1 | 95 3 | 99 | 73 2 | 163 1 | 59 | 54 2 | 94 | 83 2 | 100 | 42 | 120 4 | 11 | 152 | 110 | 191 | 0 | 0 | 124 2 | 39 | 0 | 153 | 136 1 | 58 | 503 | 0 | 0 |
| 52 | 20 | 16 | 83 | 66 | 115 | 11 | 102 | 56 | 129 | 38 | 83 | 103 | 69 | 147 | 11 | 69 | 79 | 152 | 76 | 81 | 161 | 41 | 54 | 107 | 131 | 81 | 120 | 30 | 99 |
| 83 | 117 | 125 | 130 | 139 | 98 | 115 | 215 | 96 | 62 | 66 | 49 | 132 | 78 | 129 | 106 | 506 | 124 | 171 | 0 | 0 | 112 | 46 | 98 | 212 | 191 | 83 | 166 | 15 | 141 |
| | 9 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | Ŷ | 9 | Ŷ | P | o | Ŷ | Ŷ | P | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | P | ٥ | Ŷ | ° | Ŷ |
| P | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | 9 | ? . | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | ٩ | Ŷ | ٩ | ဝှ | Ŷ | Ŷ | Ŷ |
| P | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | 9 | ٩ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | ٩ | ? | ٩ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | ٩ |
| O | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | 9 | Ŷ | 9 | ٩ | ° | Ŷ | 9 | Ŷ | ٩ | 9 | ٩ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | ° | Ŷ | Ŷ |
| Ŷ | P | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | ٩ | P | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | 9 | Ŷ | Ŷ | ٩ | 9 | Ŷ | Õ |
| 46 | 7 | 4 | 63 | 96 | 80 | 43 | 86 | 29 | 8 | 30 | 69 | 90 | 53 | 126 | 59 | 11 | 11 | 129 | 0 | ٥ | 201 | 9 | 30 | 96 | 117 | 72 | 125 | 23 | 99 |
| 4 | 93 | 97 | 96 | 90 | 74 | 11 | 121 | 51 | 9 | 0 | 87 | 111 | 71 | 130 | 72 | 100 | 132 | 182 | 85 | 0 | 100 | 34 | 70 | 160 | 138 | 61 | 216 | 14 | 111 |
| 0 | 130 | 139 | 141 | 154 | 103 | 157 | 192 | 73 | 88 | 103 | 109 | 133 | 93 | 145 | 134 | 158 | 121 | 192 | 0 | 0 | 163 | 45 | 88 | 189 | 170 | 85 | 204 | 100 | 162 |
| 4 | 99 | 91 | 70 | 98 | 144 | 75 | 96 | 27 | 143 | 31 | 11 | 104 | 61 | 159 | 11 | 102 | 72 | 166 | 0 | 0 | 187 | 45 | 33 | 129 | 153 | 122 | 133 | 45 | 20 |
| Ŷ | Ŷ | P | 0 | Ŷ | Ŷ | 우 | Ŷ | ٩ | ٩ | Ŷ | ٩ | P | 9 | ٩ | P | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | ٩ | Ŷ | ٩ | ? | Ŷ | P | ٩ | ٩ | 9 |
| 65 | 8 | 91 | 90 | 88 | 75 | 73 | 103 | 35 | 52 | 35 | 78 | 96 | 2 | 126 | 61 | 98 | 66 | 181 | 62 | 0 | 88 | 11 | 0 | 125 | 117 | 51 | 149 | 31 | 4 |
| 0 | ٩ | Ŷ | P | Ŷ | Ŷ | P | Ŷ | Ŷ | 9 | 9 | Ŷ | ٩ | 9 | ٩ | ٩ | ٩ | Ŷ | ٩ | Ŷ | ٩ | ٩ | 9 | ٩ | Ŷ | ٩ | Ŷ | P | ٥ | ° |
| 4 | 92 | 109 | 103 | 102 | 112 | 18 | 86 | 22 | 128 | 38 | 93 | 92 | 64 | 145 | 8 | 8 | 67 | 157 | 81 | 49 | 150 | 38 | 23 | 102 | 142 | 114 | 149 | 28 | 48 |
| ' | Ŷ | ٩ | P | 9 | Ŷ | P | ٩ | P | ٩ | 9 | Ŷ | Ŷ | 9 | 9 | 9 | 9 | ٩ | P | 9 | 9 | ? | ٩ | Ŷ | P | ٩ | ٩ | ٩ | 7 | 9 |
| | 140 | 182 | 254 | 188 | 131 | 156 | 192 | 95 | 108 | 78 | 144 | 145 | 132 | 148 | 109 | 170 | 183 | 217 | • | • | 164 | 85 | 175 | 211 | 212 | 123 | 343 | 871 | 188 |
| 13 | 235 | 8 228 | 0 248 | \$ 205 | 137 | 3 205 | 484 | 86 | 187 | 164 | 153 | 162 | 154 | 171 | 197 | 449 | 3 273 | 219 | 0 | 1 278 | 164 | 68 | 262 | 946 0 | 179 | 792 (| 345 | 155 | 1 263 |
| , , | 2 | 86 | | 0 104 | 1115 | 68 | 101 6 | 5 40 | 2 107 | 9 35 | 7 | 5 94 | 0 61 | 0 124 | 69 | 24 | 96 (| 149 | 5 63 | 49 | 9 221 | . 59 | 3 32 | | 5 120 | 08 1 | 131 | | 6 |
| , o | | 121 | | | 7 170 | 2 95 | 12 | m | 4 12 | m | 8 | 0 113 | 0 | | 6 | 961 9 | 6. | 2 18, | 2 | 221 | 4 | _ | 5 38 | 137 | 14 | 3 151 | 2 16 | * | 6 |
| | 1 96 | -0 157 119 | -0 172 134 | -0 165 120 | 76 0 | 95 | -0 222 209 | 5 46 | 7 84 | 99 € | -0 121 102 | | | -0 158 121 | -0 94 146 | -0 145 156 | 2 90 | -0 197 155 | 9 4 6 | 6 | -0 138 134 | 3 41 | 35 | 1 28 | -0 124 156 | 9 73 | -0 196 135 | 5 57 | -0 113 137 |
| -0 123 | -0 151 | 0 15 | 17. | 91 0 | -0 120 | -0 120 | 0 22 | -0 75 | -0 137 | -0 63 | 0 12 | -0 131 | -0 115 | 0 15 | ŏ O | 0 14 | -0 162 | 61 0 | 0 0- | -0 119 | 0 13 | -0 83 | -0 100 | -0 161 | 0 12 | -0 89 | 61 0 | -0 116 | 0 11 |
| | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 89 0- | -0 108 | -0 108 | 0- | -0 137 | -0 148 | -0 98 | -0 129 | -0 45 | -0 153 | -0 39 | -3 84 | -0 119 | -0 73 | -0 153 | -0 94 | -0 103 | -0 122 | -0 185 | -0 130 | -0 93 | -0 275 | -0 110 | -0 42 | -0 165 | -3 142 | -0 131 | -0 150 | -0 46 | 16 0- |
| | | | | 0 | | | | | | | | | | | | | | | 0 | 0 | | | | | | | | | |
| 7-29+158 | 8- 1+302 | 8- 5.738 | 8- 8*397 | 8-12• | 8-15+180 | 8-19*248 | 8-22-232 | 8-26*121 | 8-29*330 | 9- 2•102 | 9-5+0 | 9- 9*297 | 9-12+130 | 9-16+358 | 9-23+280 | 9-30-181 | 10- 7*186 | 10-14*342 | | | 11- 5-186 | 11-12• 81 | 11-19* 76 | 11-26*321 | 12- 3*232 | 12-10+169 | 12-17+ 0 | 12-24*186 | 12-31+174 |
| <u>-</u> | 8 | ₽ | & | 8 | 8 | 8 | 8-1 | 8 | 8 | 4 | 6 | 4 | 6 | 6 | -6 | 6 | 10- | 10- | 10-21 | 10-28* | -11 | 11- | 11- | -11 | 12- | 12- | 12- | 12- | 12-: |

| 9 | 120 | 32 | 284 | 109 | 2.3 |
|--|---|--|---|---|--|
| 67 | 138 | 41 | 410 | 126 | . 6 |
| 75 | 189 | 43 | 409 | 157 | ۰.۴ |
| 49 | 116 | 37 | 417 | 103 | 5.6 |
| 9.2 | 96 | 24 | 544 | 8 2 | 5.5 |
| 72 | 138 | 46 | 116 | 921 | 2.1 |
| 0 | • | 0 | 0 | 0 | . 3 |
| 0 | 0 | ٥ | ٥ | 0 | |
| 0 | 0 | 0 | 0 | 0 | • |
| 0 | 0 | 0 | 0 | 0 | • |
| 0 | 0 | 0 | 0 | 0 | |
| 75 75 65 75 76 0 79 0 72 0 75 74 69 72 0 0 0 0 0 72 76 64 75 67 68 | 113 108 92 251 181 0 87 0 91 0 95 149 103 91 0 0 0 0 0 138 90 116 189 138 120 | 28 35 32 68 60 0 22 0 17 0 27 45 34 23 0 0 0 0 0 46 24 37 43 47 32 | 309 252 236 580 871 0 219 0 299 0 266 322 285 369 0 0 0 0 0 371 244 417 604 410 284 | 102 99 82 231 160 0 78 0 81 0 85 138 95 80 0 0 0 0 0 126 82 103 157 126 109 | 3.4 44.2 114.6 40.1 47.7 45.4 44.5 0. 0. 0. 35.5 119.7 52.3 46.7 98.4 0. 0. 0. 58.5 56.0 0. 0. 62.7 65.6 66.9 |
| 69 | 103 | 34 | 285 3 | 95 | 5.5 |
| 74 | 149 | 45 | 322 | 138 | 4.5 |
| 75 | 95 | 27 | 566 | 8 2 | 5 .t |
| 0 | 0 | • | 0 | 0 | 4 |
| 22 | 91 | 11 | 599 | 81 | 7.7 |
| 0 | 0 | 0 | 0 | 0 | 4 |
| 4 | 87 | 22 | 219 | 18 | 1.0 |
| 0 | 0 | 0 | 0 | 0 | 4 |
| 16 | 181 | 9 | 118 | 160 | 9. |
| 75 | 251 | 89 | 280 | 231 | 11. |
| 65 | 92 | 32 | 236 | 82 | 4.2 |
| 75 | 108 | 35 | 252 | 8 | 4 29 |
| 75 | 113 | 28 | 309 | 102 | 4. 4. |
| | | | | | LC . |
| 0 | 0 | 0 | 0 770 | 0 | • |
| 70 0 79 0 75 | 0 136 0 160 | 0 39 0 63 | 0 455 | 121 | 2.0 |
| 0 | | | 0 | 0 | |
| 20 | 274 | 76 | 784 | MEAN 242 0 121 0 146 | 147.3 72.0 92.8 |
| NUN | AVG | N I W | МАХ | MEAN | SGD 1 |

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AVG=ARITHMETIC AVERAGE
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NOTE

TABLE II. - Continued. 1968 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $_{\mu g/m}^3$) FOR CLEVELAND, OHIO

| e. |
|---------|
| dioxid |
| rogen d |
| Nitro |
| 3 |
| |

| | N MAX O O | 169 | 217 | 0 | • | • | _ m | | ٠.٠٠ | | | | 302 | 1 380 | _ N | . 4 | | 172 | 74 | _ | 0 240 108 2 168 |
|--------------------------------------|------------------|----------|------------------|----------|--------|----------|---------|----------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------------------|
| PTC HNR H.S | - | ဝု | 8 9 9 9 | ှ ဂု | ٠ ٩ | ٠ ٩ | ဝှ | -083 |) (| -0.2 | 180 | | 10 | -017 | 60- | 10 | | , o . | • , | ြ ကို | , 0, |
| FIR STA | 0 | 9 | P | P | Ŷ | Ŷ | P | 0 | 9 | 9 | Ŷ | Ŷ | ° | 0 | Ŷ | Ŷ | 9 | ٥ | 9 | 0 | 0 |
| 3 2 3 3 3 3 | o I | 9 | Ö | 9 | Ŷ | Ŷ | ٩ | 9 | 9 | ٩ | 0 | 9 | Ÿ | 9 | 0 | ° | o I | 0 | ° | õ | 0 |
| BEN DCT | Ŷ | Ŷ | Ŷ | 9 | Ŷ | Ŷ | 9 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | 0 | 9 | 0 | Ŷ | Ŷ | 0 | Ŷ | O 1 |
| HOH HSH SH SH | 0 | 0 | 0 | Ŷ | Ŷ | Ŷ | Ŷ | 9 | Ŷ | Ŷ | Ŷ | 0 | 0 | 0 | 0 | 0 | 95 | 157 | 139 | 88 | 72 |
| CLE | 0 | 9 | 0 | 9 | 0 | 9 | Ŷ | Ŷ | ° | ٩ | 0 | Ŷ | Ŷ | Ŷ | 0 | Ŷ | 9 | Ŷ | Ŷ | 0 | 123 |
| PS0 PS0 | Ŷ | ٩ | 0 | 0 | Ŷ | 0 | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | 9 | Ŷ | Ŷ | 0 | Ŷ | 0 | ٩ | 0 | 9 | Ŷ |
| A . H | 9 | ٩ | 0 | Ŷ | 9 | Ŷ | Ŷ | 9 | 9 | Ŷ | ٩ | 9 | Ŷ | Ŷ | Ŷ | 9 | Ŷ | Ŷ | 9 | ° | Ŷ |
| SVN BLD | Ŷ | P | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | 9 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | ٩ | Ŷ |
| SUP | 0 | Ŷ | Ŷ | 9 | 9 | Ŷ | 0 | 9 | 0 | ٩ | 9 | o- | P | 9 | 0 | Ģ | 9 | Ŷ | 9 | 0 | 0 |
| ST. JSP H.S | . P | P | Ŷ | ٩ | 9 | Ŷ | Ŷ | Ŷ | ٩ | ٩ | ٩ | Ŷ | P | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | P | ° |
| A.S. | Ŷ | 9 | ٩ | Ŷ | Ŷ | ٩ | Ŷ | 9 | 9 | ٩ | ٩ | Ŷ | 9 | 9 | 9 | Ŷ | 9 | Ŷ | Ŷ | ٩ | 9 |
| ADA H. S | 9 | 9 | Ŷ | 9 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | 9 | Ŷ | ٩ | 0 |
| FIR STA =29 | Ŷ | 9 | ٩ | Ŷ | ٩ | Ŷ | P | Ŷ | ٩ | ç | ٩ | 9 | Ŷ | ဂိ | 9 | ဂိ | Ŷ | Ŷ | ٩ | ဂိ | 9 |
| ALM ELM CHL | Ŷ | 9 | ٩ | 9 | ٩ | Ŷ | ٩ | ٩ | ٩ | 9 | Ŷ | ٩ | ٩ | ٩ | ٩ | ٩ | ٩ | Ŷ | Ŷ | ဝ | Ŷ |
| P.L DNB ELE | ٩ | 9 | ٩ | Ŷ | ٩ | 9 | Ŷ | Ŷ | Ŷ | ٩ | P | Ŷ | 9 | 9 | Ŷ | Ŷ | Ŷ | ٩ | P | Ŷ | 9 |
| A.S. | ٩ | P | Ŷ | ٩ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | 9 | P | Ŷ | P | Ŷ | 9 | Ŷ | Ŷ | ٩ | Ŷ | 0 | 159 |
| HRV YAR | Ò | Ŷ | P | ٩ | ٩ | 9 | Ŷ | Ŷ | Ŷ | 9 | 9 | ٩ | ٩ | P | 9 | Ŷ | Ŷ | ٩ | ٩ | 0 | 0 |
| GEO WAS ELE | 9 | 108 | 9 | Ŷ | 9 | Ŷ | 289 | 90 | 181 | 181 | 108 | 181 | 217 | 90 | 181 | 343 | 150 | 112 | 162 | 26 | 85 |
| GRV SCH | Ŷ | ٩ | P | ٩ | Ŷ | ٩ | 9 | Ŷ | Ŷ | Ŷ | 0 | 9 | 9 | 9 | Ŷ | 9 | 9 | ٩ | ٩ | ٩ | 0 |
| FIR STA =19 | 9 | Ŷ | Ŷ | Ŷ | ٩ | P | Ŷ | ٩ | 9 | 9 | ٩ | 9 | 9 | 9 | 9 | Ŷ | P | ٩ | Ŷ | 9 | 9 |
| FIR STA =13 | Ŷ | 217 | Ŷ | ٩ | Ŷ | ٩ | 289 | 199 | 159 | 235 | 240 | 253 | 362 | 217 | 307 | 416 | 150 | 229 | 181 | 240 | 121 |
| EST BRK REC | ٩ | Ŷ | ٩ | P | P | 9 | Ŷ | Ŷ | 9 | ٩ | ٩ | 0 | 0 | 181 | 144 | 0 | 108 | 126 | 144 | 96 | 52 |
| COL CUD WOO REC H.S CEN | P | -0 108 | Ŷ | 9 | 0 | Ŷ | -0 362 | -0 162 | -0 162 | -0 253 | -0 181 | -0 162 | 235 | -0 126 | 181 | -0 651 | -0 130 | -0 197 | -0 144 | -0 152 | -0 108 |
| COL #00 H | Ŷ | | Ŷ | Ŷ | ٩ | Ŷ | | | | | Ŷ | | 9 | | ° | | | | | | |
| BKL CLE CLE CYMC HLT PNE W MUS TOO H | 9 | 0 | ٩ | Ŷ | ٩ | Ŷ | 322 | 175 | -0 173 | 219 | -0 181 | 217 | 380 | 144 | 217 | 398 | 142 | -0 181 | -0 162 | 157 | -0 112 |
| CLE HTT | Ŷ | ٩ | ٩ | Ŷ | ٩ | Ŷ | 9 | 9 | | ٩ | | Ŷ | 9 | 9 | ٩ | Ŷ | Ŷ | | | Ŷ | |
| BKL YMC | 9 | -0 199 | Ŷ | Ŷ | Ŷ | P | 362 | 126 | -0 126 | 181 | 108 | 144 | 253 | 181 | 162 | 434 | 168 | -0 144 | 83 | 114 | 81 |
| A5B J-IS | Ŷ | | ٩ | P | P | P | 0- | 0 | | C- | ٩ | 6- | P | P | 0- | ٥ | ° | | ٩ | C | 0 |
| AIR POL OFC | DATE 1- 3* -0 | 1- 6+217 | 1-100 | 1-20+ -0 | 1-240 | 1-31* -0 | 2- 7. 0 | 2-14+126 | 2-21+ 0 | 2-24* 0 | 2-28* 0 | 3- 4+318 | 3- 7+369 | 3-11+179 | 3-14*246 | 3-18•416 | 3-21+126 | 3-25+237 | 3-28*119 | 4- 1:146 | 4- 4#168 |

TABLE II. - Continued. 1968 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $_{\mu g/m}^3$) FOR CLEVELAND, OHIO

Nitrogen dioxide

Concluded.

158 209 209 208 208 208 158 158 128 200 139 215 215 215 127 -0 99 48 141 -0 192 124 295 -0 128 -0 188 77 323 -0 217 159 269 -0 183 -0 20 484 -0 20 484 162 325 -0 192 126 289 126 289 126 289 126 289 126 289 126 289 126 289 126 289 126 289 126 289 126 289 126 289 126 289 205 307 251 325 289 380 , é -0-. 21 0--0 132 -0 1 117 -0 2 121 -0 1 135 -0 2 -0 2 o ç Ŷ ဝှ ç o Ŷ ပု Ŷ Ü o Ŷ Ŷ Ŷ o Ŷ Ŷ ç ဝ ဝ o Ŷ Ŷ ç ç Ŷ Ŷ o P Ŷ Ŷ Ŷ ? ç ç ç 유 o Ŷ ç Ŷ Ŷ ç ç Ŷ Ŷ o Ŷ Ŷ o P Ŷ P ç ç ç ç Ŷ Ŷ o Ŷ ç Ŷ Ŷ Ŷ o o o o o o Ŷ Ŷ Ŷ o o o ç o o Ŷ o Ŷ Ŷ o o o o Ŷ ę Ŷ o 128 128 235 144 0 181 o o Ŷ Ŷ Ŷ Ŷ Ŷ o Ŷ o Ŷ -0 159 -0 144 -0 162 -0 144 -0 199 -0 108 -0 144 -0 126 -0 144 -0 108 -0 199 ဂူ ç o Ŷ o ç 10-28*199 11- 5*289 11-19-144 12-17+380 7-29+208 8- 1+190 5*276 8.186 8-12-219 8-22+249 8-26+133 8-29*295 9- 2+115 9- 9+253 9-12+193 9-16+271 9-23*181 9-30+235 10- 7-126 10-14+362 10-21+235 11-12+162 11-26-162 12- 3+162 12-10+235 12-24-144 12-31 +289 8-15*197 8-19-157 9- 5+323

| 0 | 0 | 0 | 0 | 0 | ċ |
|--|---|--|---|---|---|
| 0 | O | 0 | 0 | 0 | • |
| 0 | ပ | 0 | O | ø | |
| 0 | 0 | 0 | 0 | 0 | • |
| 59 | 156 | 54 | 338 | 145 | 8 • 3 |
| 55 | 90 | 12 | 93 | 22 | 98 |
| 0 | 0 | 0 | 0 | 0 | . 8 |
| 71 0 76 0 69 47 72 66 67 0 0 74 0 55 0 0 0 0 0 0 0 0 0 55 59 0 0 0 0 | 0 202 212 201 166 247 0 0 161 0 156 0 0 0 0 0 0 0 0 0 206 156 0 C C 0 | 79 110 63 50 121 0 0 36 0 77 0 0 0 0 0 0 0 0 12 54 0 0 0 | 0 590 561 651 696 479 0 0 345 0 322 0 0 0 0 0 0 0 0 0 533 338 0 0 0 | 0 160 0 189 198 182 149 235 0 0 146 0 148 0 0 0 0 0 0 0 0 0 177 145 0 0 0 0 | 86.1 92.0 0. 69.5 52.9 0. 0. 0. 0. 0. 66.8 0. 0. 0. 5 98.6 77.4 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. |
| 0 | 0 | ø | 0 | 0 | • |
| 0 | 0 | 0 | • | 0 | • |
| 0 | 0 | 0 | 0 | 0 | • |
| 0 | 0 | 0 | 0 | 0 | • |
| 0 | 0 | 0 | 0 | 0 | • |
| 0 | 0 | O | o | . • | • |
| 0 | 0 | 0 | 0 | 0 | • |
| 0 | 0 | ø | 0 | 0 | • |
| 25 | 951 | 11 | 322 | 8 | 6•2 |
| 0 | • | ø | 0 | 0 | . 55 |
| 4. | 191 | 36 | 345 | 9 | 5.5 |
| 0 | 0 | ,o | 0 | 0 | 9 |
| 0 | 0 | 0 | 0 | ٥ | : |
| 29 | 247 | 121 | 619 | 235 | 4.4 |
| 99 | 166 | 20 | 969 | 149 | 2.0 |
| 72 | 201 | 63 | 159 | 182 | 8.6 |
| 41 | 212 | 110 | 561 | 198 | 6.1 |
| 69 | 202 | 43 | 290 | 189 | 2°5 |
| 0 | 0 | 0 | 0 | • ` | • |
| 92 | 0 177 | 0 65 0 | 969 0 | 160 | |
| 0 | | 0 | | | • |
| 1. | 211 | 86 | 909 | 197 | 0. 0. 83.5 94.5 82. |
| N C | AVG | MIN | MAX | MEAN | SGD |

ZERO IS NOT A MEASURED VALUE. IT INDICATES AN INVALIDATED READING.
MINUS ZERO IS NOT A MEASURED VALUE. IT INDICATES A NON-OPERATING STATION.
NOM-WUNBER OF READINGS OBTAINED DURING YEAR
AVG-ARITHMETIC AVERAGE
MEAN-GEOMETRIC MEAN
SGD=STANDARD DEVIATION MITH DIVISOR OF (N-1) NOTE

TABLE II. - Continued. 1968 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $_{\mu g/m}^3$) FOR CLEVELAND, OHIO

| • | τ | |
|---|---|---|
| | ÷ | |
| | è | 9 |
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| | • | , |
| | 2 | |
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| • | į | - |
| • | | |
| 1 | ż | |
| • | • | |
| | _ | |
| - | c | |
| • | | |
| | | |

| 9 | A A C | _ | 84 | | 0 | ۰ | 171 | | 67 | 164 | 52 | 107 | 243 | 140 | 101 | 580 | 95 | 181 | 39 | 0 9 9 | 35 |
|---|------------------|----------|----------|-------------|-------|----------|---------|----------|--------|---------|----------|----------|----------|----------|------------|------------------|----------|----------|----------|----------|----------|
| P TC H NR S S | Z o | | | 6 0- | o (| ۰ ۰ ۲ | 9 | -020 | 2 0 7 | 50- | -0.5 | 70- | , 0 | -0 | , 6 , 6 | , -, , , -, , | | -0- | 6,0 | 9 | -0 2 |
| FIR STA =35 | Ŷ | Ŷ | 0 | P | Ö | Ŷ | Ŷ | Ŷ | Ü | Ŷ | Ö | P | 0 | Ŷ | Ü | ٩ | 9 | Ŷ | 0 | ٥ | 9 |
| <u> </u> | 9 | ٩ | 0 | Ŷ | Ö | Ŷ | 3 | ٩ | 0 | 0 | 0 | -0 | 0 | 0 | 9 | 9 | 0 | Ŷ | 0 | ٥ | 3 |
| BEN DCT H. S | Ŷ | Ŷ | Ŷ | 9 | Ŷ | ٩ | ٩, | Ŷ | Ŷ | ٩ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٥ | ٩ |
| 1 S 1 S 2 S 3 S 3 S 3 S 3 S 3 S 3 S 3 S 3 S 3 | Ŷ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | ٥ | Ŷ | Ŷ | 9 | Ŷ | 0 | 0 | 0 | 0 | 0 | 90 | 25 | 15 | 20 | 12 |
| CLE | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | 9 | Ŷ | 0 | Ŷ | Ŷ | Ŷ | 0 | ٩ | 9 | ٩ | Ŷ | 0 | 40 |
| THO PSO PRO | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ° | Ŷ | Ŷ | ٥ | Ŷ |
| GRE TER | Ŷ | 9 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | 9 | ٩ | Ŷ | Ŷ |
| CUY SVN BLD | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | 9 | Ŷ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | 9 | 9 | Ŷ |
| SUP EDU CEN | ٩ | ٩ | Ŷ | 0 | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | 9 | Ŷ | P | ٩ | P | Ŷ | ٩ | 0 | 0 | Ŷ | 0 | Ŷ |
| ST. JSP H.S | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | 9 | Ŷ | Ŷ | 9 | Ŷ |
| A.S | ٩ | ٩ | Ŷ | ò | Ŷ | Ŷ | Ŷ | Ŷ | 9 | 9 | ٩ | Ŷ | Ŷ | 9 | P | 9 | o o | ç | ٩ | P | Ŷ |
| JOH ADM H.S | ٩ | ٩ | ٩ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | ٩ | ٩ | ٩ | ٩ | Ŷ | ٩ | 9 | ٩ | ٩ | Ŷ | ٩ |
| FIR STA =29 | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | ٩ | ٩ | ٩ | Ŷ | ٩ | <u>٩</u> | Ŷ | ٩ | ဂ | Ŷ | 9 | Ŷ | P | 9 | P | ٩ |
| ALM ELM CHL | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | 0 | 9 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | 9 | Ŷ | Ŷ | 9 |
| P.L ONB ELE | 9 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | P | Ŷ | ٩ | Ŷ | ٩ | ٩ | Ŷ | 0 |
| JFK H.S | ٩ | Ŷ | 9 | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | ٩ | ٩ | P | Ŷ | ٩ | 0 | Ŷ | ٩ | 0 | 27 |
| HR V YA R | 9 | ٩ | ٩ | Ŷ | P | ٩ | 9 | ٩ | ٩ | 9 | ٩ | ٩ | 9 | 0 | ٩ | 0 | 9 | 0 | 9 | 0 | 0 |
| GEO WAS ELE | Ŷ | 99 | 63 | ٩ | Ŷ | Ŷ | 120 | 20 | 37 | 95 | 22 | 55 | 123 | 45 | 9 | 221 | 99 | 21 | 15 | 22 | 12 |
| SCA V | ٩ | ٩ | Ŷ | Ŷ | 9 | Ŷ | 0 | ٩ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | 0 | 9 | ٥ | 9 | ٥ | Ŷ | o I |
| FIR STA =19 | ٩ | ٩ | ٩ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | 0 | 9 | ٩ | Ŷ | ٩ | ٥ | ٩ | 9 | Ŷ | 9 | 9 | 0 |
| FIR STA =13 | Ŷ | 126 | 0 | Ŷ | Ŷ | Ŷ | 158 | 146 | 146 | 231 | 110 | 0 | 0 | 0 | 0 | 0 | 63 | 70 | 110 | 105 | 25 |
| EST BRK REC | Ŷ | ٩ | 0 | Ŷ | ٩ | Ŷ | 9 | ٩ | ٩ | Ŷ | Ŷ | 0 | 0 | 171 | 55 | ٥ | 78 | 32 | 10 | 15 | 0 |
| CUD REC CEN | 9 | -0 113 | 90 | Ŷ | ° | ٩ | -0 176 | -0 126 | 50 | -0 118 | 45 | -0 108 | -0 128 | 45 | -0 100 | -0 519 | 27 | 37 | 40 | 25 | 15 |
| COL 1000 11.5 | ٩ | | Ŷ | 9 | Ŷ | ٩ | ٩ | ٩ | Ŷ | ٩ | Ŷ | Ŷ | 9 | ٩ | 9 | 0 | ٩ | Ŷ | 9 | P | ٩ |
| CLE PNE TOD | Ŷ | Ŷ | 93 | Ŷ | ٩ | Ŷ | -0 131 | -0 103 | 65 | 158 | 55 | -0 199 | -0 380 | 75 | 118 | -0 735 | 93 | -0 110 | 20 | 73 | 25 |
| CLE HLT MUS | ٩ | ٩ | 9 | ٩ | ٩ | Ŷ | Ŷ | ٩ | Ŷ | 9 | Ŷ | Ŷ | Ŷ | ٩ | 0 | ٩ | ٩ | Ŷ | ٩ | 9 | Ŷ |
| ADB BKL CLE CLE J4S YMC HLT PNE MUS TOD | ٩ | -0 231 | 90 | ٩ | Ŷ | ٩ | -3 274 | 85 | 37 | 221 | 32 | 68 | -0 241 | -0 241 | 85 | 531 | 181 | 75 | 17 | 27 | 0 |
| ADB J-1S | ٩ | | ç | ٩ | ? | P | ç | 0- | 9 | 9 | ? | 9 | Ŷ | ? | ٩ | 9 | 0 | 0 | 0 | 0 | Ŷ |
| AIR POL OFC | DATE 1- 3+ -0 | 1- 6*216 | 1-10+ -0 | 1-20* -0 | 1-240 | 1-31+ -0 | 2- 7. 0 | 2-14+ 37 | 2-21 0 | 2-24. 0 | 2-28 0 | 3- 4*108 | 3- 7+347 | 3-11+267 | 3-14+189 | 3-18+897 | 3-21+141 | 3-25+226 | 3-28+ 40 | 4- 1+ 85 | 4- 4*128 |

TABLE II. - Concluded. 1968 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $_{\mu g}/m^3$) for Cleveland, ohio

(c) Concluded. Sulfur dioxide

| 21 | |
|--|---|
| 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 25 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| | |
| | |
| 112 112 113 114 117 117 117 117 117 117 117 117 117 | 151 151 50 50 50 50 50 50 50 75 75 |
| 0 0 1128 110 110 108 108 108 108 108 108 108 10 | 151 100 100 1100 1100 151 100 50 50 |
| | |
| | 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| | 9 9 9 9 9 9 9 9 9 9 9 9 |
| | |
| | 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | 9 9 9 9 9 9 9 9 9 9 9 9 |
| 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | 9 9 9 9 9 9 9 9 9 9 9 9 |
| ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° | |
| 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | |
| 0 4 47 42 42 42 42 42 42 42 42 42 42 42 42 42 | 42 0 0 50 75 100 100 100 25 |
| | |
| 12 25 25 25 65 105 17 70 5 5 5 5 5 5 27 120 27 22 22 25 25 25 25 26 26 26 26 26 26 26 26 26 26 26 26 26 | 27 50 25 252 252 50 100 100 100 25 25 50 |
| | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| 50 85 88 88 88 37 196 196 90 90 93 93 | 151 0 151 100 151 126 151 75 50 50 226 126 |
| 12 25 25 25 63 7 7 7 10 10 10 10 10 3 3 | 35 75 75 50 352 50 50 75 75 75 |
| 35 35 0 0 0 0 40 40 40 0 0 0 0 0 0 0 0 0 0 0 | 60 75 75 75 75 75 100 100 0 0 |
| 37 27 73 55 68 55 68 73 27 73 40 17 45 176 65 35 65 55 65 55 93 105 93 105 93 105 93 105 93 105 | 55 0 25 25 151 151 151 126 50 50 0 0 |
| 73 73 73 73 73 73 73 73 73 73 73 73 73 7 | -0 0 55 -0 176 176 -0 0 0 -0 120 151 -0 47 50 -0 126 151 -0 126 151 -0 126 151 -0 126 126 -0 50 50 -0 75 75 -0 151 151 -0 75 75 |
| | 9 9 9 9 9 9 9 9 9 9 9 9 |
| -0 15 -0 37 -0 37 -0 83 -0 27 -0 123 -0 0 -0 40 -0 45 -0 45 -0 27 -0 50 | -0 27 -0 126 -0 327 -0 327 -0 100 -0 100 -0 100 -0 100 -0 100 -0 100 |
| | |
| 70 68 68 63 1153 32 1133 32 50 50 90 90 | 55 75 75 75 75 75 75 75 75 75 |
| 8- 1* 70 8- 1* 70 8- 5* 68 8- 8* 47 8-12*153 8-12*153 8-12* 17 8-26* 32 8-26* 32 9-29*133 9- 5*108 9- 9-302 9-16*201 9-16*201 | 10-14*378 10-21*75 10-28*50 11-5*201 11-12*100 11-19*50 11-26*226 12-3151 12-17*126 12-24*75 12-31*25 |

| 0 | 0 | 0 | 0 | 0 | ċ |
|--|--|---|---|--|--|
| 0 | o | 0 | 0 | 0 | • |
| 0 | 0 | 0 | 0 | 0 | |
| 0 | 0 | 0 | 0 | 0 | |
| 9 | 4 | ĸ | 205 | 32 | 6. |
| 53 | 501 | 12 | 141 | 90 | 4.4 |
| 0 | 0 | 0 | 0 | 0 | • |
| 0 | • | 0 | 0 | 0 | |
| 0 | 0 | 0 | 0 | 0 | • |
| 0 | 0 | 0 | 0 | 0 | • |
| 0 | 0 | 0 | 0 | 0 | • |
| 0 | 0 | 0 | 0 | 0 | • |
| 0 | 0 | 0 | 0 | 0 | • |
| o | 0 | • | 0 | 0 | ٠. |
| 0 | 0 | 0 | 0 | 0 | • |
| 0 | 0 | 0 | 0 | 0 | ٠. |
| 53 | 20 | ~ | 56 | 45 | |
| 0 | 0 | 0 | 0 | 0 | . 28 |
| 72 | 54 | ~ | 25 | 37 | 4 |
| 0 | 0 | 0 | 0 | 0 | . 47 |
| 0 | 0 | • | 0 | 0 | ٠ |
| 49 | 129 | 25 | 7 4 | 112 | 6. |
| 62 | 49 | - | 352 3 | 4 | 4,8 |
| | | | *** | | ~~ |
| 69 | 77 | - | 616 | 58 | ۶. د م |
| 47 69 | 83 77 | 17 71 | 619 921 | 70 58 | 73.7 |
| 71 47 69 | 11 83 77 | 20 17 7 | 915 971 38 | 87 70 58 | 47.2 6 6 73.7 |
| 0 71 47 69 | 77 88 111 0 | 0 20 17 7 | 0 735 176 519 | 0 87 70 58 | 47.2 6 113.6 73.7 |
| 72 0 71 47 69 | 95 0 111 83 77 | 10 0 20 17 7 | 131 0 735 176 519 | 65 0 87 70 58 | 0. 47.2 6 |
| 0 72 0 71 47 69 | 77 88 111 0 56 0 | 0 10 0 20 17 7 | 0 531 0 735 176 519 352 274 0 0 252 0 126 0 0 0 0 0 0 0 0 0 0 441 30% 0 0 0 | 0 65 0 87 70 58 | , 94.7 113.6 73.7 |
| 71 0 72 0 71 47 69 62 64 0 0 72 0 53 0 0 0 0 0 0 0 0 0 53 60 0 0 0 | AVG 137 0 95 0 111 83 77 64 129 0 0 54 0 50 0 0 0 0 0 0 0 0 0 105 46 0 0 C 0 | 12 0 10 0 20 17 7 7 25 0 0 2 0 7 0 0 0 0 0 0 0 0 0 12 5 0 0 0 0 | 897 0 531 0 735 176 519 | MEAN 95 0 65 0 87 70 58 44 112 0 0 37 0 42 0 0 0 0 0 0 0 0 0 0 90 32 0 0 0 | SGO 0. 0. 47.2 68.4 0. 47.4 28.3 0. 0. 0. 0. 0. 0. 45.9 0. 0. 0. 134.3 94.7 113.6 73.7 62.9 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. |

ZERO IS NOT A MEASURED VALUE. IT INDICATES AN INVALIDATED READING.
MINUS ZERO IS NOT A MEASURED VALUE. IT INDICATES A NON-OPERATING STATION.
NUM=NJMBER OF READINGS OBTAINED DUXING YEAR
AVG=ARITHMETIC AVERAGE
MEAN=GEOMETRIC MEAN
SGD=STANDARD DEVIATION MITH DIVISOR OF (N-1)

NOTE

table III. - 1969 24-hour-sampling air-pollution data (in $_{\mu g/m}^3)$ for cleveland, ohio

(a) Suspended particulate

| | AVG MAX 0 | | | 150 | ວົ | • | 0 | 161 | 113 | 51 311 175 | - 19 | | 114 | 49 206 | 100 | 203 | 103 441 7 127 | 56 342 | 91 493 | 267 | 163 | 112 341 2_124 | 72 289 . 106 | 48 253 201 | 90 399 | 107 | 45 502 75 128 | 114 54 342 |
|---|---------------|----------|----------|-----|--------|---------|----|-----------|-----------|---------------|-----------|----------|----------|--------|--------------|-----------|------------------|----------|----------|-----------|-----------|---------------------------------------|-----------------|---------------|--------|----------|-----------------------------------|----------------|
| | AVG MIN MA | 4 | | 26 | 0 | • | 0 | _; | ະຼ | <u>.</u> 2 | 1.5 | | ₹ _ | 6 | ~ < | } | ຄິ້ | 2,56 | ิัธ | | 123 163 | ֓֞֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓ | 2 | ٠ چ (| .0 | _ ; | ֓֞֞֞֞֞֞֞֞֞֓֞֞֓֞֞֞֓֓֓֞֞֓֞֓֞֓֓֡֡֡֡֡ | ຸ້. ຊຸ |
| HNR H.S | 0 | | 3 | | | _ | | 140 | Ξ | | | ₹ | , 64 | | ₾ ` | 25 | 19 | | | 196 | 12 | 11 | | | | 6 | | `` 9 *` |
| FIR STA =35 | 2 | | 139 | | 0 | 0 | 1 | 145 | 111 | 236 | | 135 | 206 | | 9 | 0 | 85 | | | 285 | 297 166 | 214 130 | 107 152 | 153 | | 120 | 251 | 100 |
| 2 5 6 6 7 | 4 | ζ. | 0 | | 0 | 0 | | 141 | 113 | | 7 | 127 | 170 | . ; | 134 | 161 | 0 221 | | > | 414 | 297 | 214 | 107 | 300 | | 16 | 114 | 221 |
| BEN DCT | • | • | 94 | | 0 | 0 | I | 106 | 81 | 167 | 1 | 8 | 127 | i | = | 158 | 0 | • | > | 0 | 0 | 114 | 118 | 8 | : | 11 | 148 | 73 |
| FSH FSH FSH | 2 | ř | 67 | | 0 | 0 | | 99 | 9 | ::3 | 1 | 49 | 49 | į | ñ | 193 | 26 | 6 | 7 | 176 | 118 | 77 | 52 | 192 | | 0 | 80 | 72 |
| CLE | 9 | ì | 95 | | 0 | 0 | | 155 | 106 | 140 | <u>,</u> | 82 | 133 | 1 | 128 | 253 | 98 | 70 | 997 | 303 | 158 | 144 | 160 | c | • | 152 | 195 | 4 |
| PS0 PS0 PS0 | c | • | 0 | | 0 | 0 | I | 0 | 0 | • | | 0 | 0 | | 9 | 0 | 0 | | > | 0 | 0 | 0 | 0 | c | • | 0 | 0 | 0 |
| H GR T R N R | c | • | 0 | | 0 | 0 |) | 0 | 0 | • | > | 0 | 0 | • | 0 | 0 | 0 | • | > | 0 | 0 | 0 | 0 | c | • | 0 | 0 | 0 |
| SVN BLD | • | > | 0 | | 0 | 0 | , | 0 | 0 | c | • | 0 | 0 | • | 0 | 0 | 0 | • | > | 0 | 0 | 0 | 0 | c | • | 0 | 0 | 0 |
| SUP | • | • | 0 | | 0 | 0 | I | 0 | 0 | c | > | 0 | 0 | • | 0 | 0 | 0 | • | > | 0 | 0 | 0 | 0 | c | • | 0 | 0 | 0 |
| ST. JSP H.S | • | > | 0 | | 0 | 0 | , | 0 | 0 | • | • | 0 | 0 | • | 9 | 0 | 0 | • | > | 0 | 0 | 0 | 0 | c | • | 0 | 0 | 0 |
| A.R. | 6 | 0 | 49 | | 0 | 0 | • | 140 | 119 | , | 5 | 14 | 64 | i | 23 | 251 | 197 | C | > | 196 | 123 | 112 | 92 | c | • | 66 | 75 | 99 |
| ADH H.S | 71 | | 116 | | 0 | 0 | , | 122 | 86 | 9 | | 84 | 124 | ; | 63 | 154 | 99 | | 1 + 1 | 218 | 133 | 92 | 66 | 96 | ? | 83 | 150 | 95 |
| FI3 STA #29 | • | | 86 | | 0 | 0 | , | 165 | 134 | 4 | | 73 | 105 | | 130 | | 342 | | • | 345 | 170 | 155 | 139 | 176 | : | 111 | 132 | 100 |
| SE'A | 43 | 2 | 26 | | 0 | 0 | ļ. | 88 | 72 | 9 | | 28 | 99 | | 70 | 120 334 | 0 | • | > | 186 | 127 | 72 | 48 | 229 | ì | 49 | 80 | 98 |
| P.L DNB ELE | c | • | 0 | | 0 | 0 | • | 0 | 0 | • | | 0 | 0 | • | 9 | 0 | 0 | • | > | 0 | 0 | 0 | 0 | c | | 0 | 0 | 0 |
| A.S. | . 4 | 0 | 29 | | 0 | c | , | 72 | 51 | 134 | 071 | 57 | 99 | 1 | Š | 103 | 59 | 9 | 3 | 161 | 116 | 73 | 84 | 6 | ? | 72 | 139 | 63 |
| HRY | c | • | 0 | | 0 | 0 | , | 0 | 0 | • | | 0 | 0 | • | 0 | 0 | 0 | | > | 0 | 0 | 0 | 0 | c | | 0 | 0 | o ' |
| GEO WAS ELE | 4 | ? | 63 | | 0 | 0 | , | 14 | 84 | 22 | 2 | 4 | 57 | • | £ | 162 | 72 | S | 7,5 | 186 | 118 | 95 | 49 | 116 | } | 9 | 51 | 54 |
| SCH X | • | > | 0 | | 0 | 0 | , | 0 | 0 | c | > | 0 | 0 | • | 0 | 0 | 0 | • | > | 0 | 0 | 0 | 0 | 0 | • | 0 | 0 | 0 |
| FIR STA =19 | 27.0 | 0 | 7 | | 0 | 0 | , | 602 | 139 | 17.0 | 7 | 69 | 102 | į | 162 | 267 | 104 | ç | 764 | 318 | 199 | 185 | 125 | 258 | | 118 | 108 | 110 |
| FIR STA =13 | 747 | , | 150 | | 0 | 0 | , | 389 | 311 | 202 | 26.0 | 103 | 184 | | 521 | 441 | 115 | 200 | 350 | 351 | 234 | 289 | 253 | 234 | } | 302 | 243 | 168 |
| EST BRK REC | 5 | | 63 | | 0 | 0 | | 81 | 83 | 9 | | 62 | 92 | | ť | 106 | 65 | | 62 | 214 | 112 | 16 | 36 | 267 | | 0 | 46 | 160 |
| S S S S | 4 | 5 | 63 | | 0 | 0 | II | 112 | 101 | ; | : | 88 | 102 | ; | × | 160 | 0 | • | > | 203 | 136 | 85 | 59 | 38.5 | | 74 | 61 | 63 |
| | a | | 67 | | 0 | 0 | • | 102 | 128 | 70 | 20 | 21 | 71 | 1 | 2 | 231 | 83 | č | 9 | 202 | 122 | 116 | 72 | 142 | | 45 | 70 | 72 |
| 2 % E | S | 2 | 0 146 67 | | 0 | 0 | ì | 0 173 102 | 0 111 128 | | 061 677 0 | 0 105 | 0 126 71 | | 0 103 | 0 152 231 | 93 | 70. | 06 001 0 | 0 287 202 | 0 167 122 | 0 112 116 | 0 129 72 | 0 148 147 | 2 | 0 117 45 | 0 216 70 | 0 114 72 |
| E F E | c | • | 0 | | 0 | 0 | , | 0 | 0 | c | • | 0 | 0 | • | • | 0 | 0 | • | > | 0 | 0 | 0 | 0 | 0 | • | 0 | 0 | 0 |
| SKL MC | 9 | S | 75 | | 0 | 0 | 1 | 95 | 0 103 | 6 | | 89 0 | 0 145 | ; | 7 | 0 170 | 83 | | 877 0 | 0 259 | 0 151 | 0 117 | 86 | 0 326 | | 95 | 46 | 0 210 |
| AIR ADB BKL CLE CLE COL POL J4S YMC HLT PNE WOO OFC MUS TOO M.S | c | • | 0 | | 0 | 0 |) | 0 | 0 | • | • | 0 | 0 | • | 0 | 0 | 0 | | • | 0 | 0 | 0 | ٥ | 0 | • | ٥ | 0 | 0 |
| AIR Pol OFC | DATE | 10 | 1-14#148 | | 1-21 0 | 1-28* 0 | | 2- 4•262 | 2-11-142 | 0.00 | 016.01.7 | 2-25-147 | 3- 4+197 | | 3-11-167 | 3-17+202 | 3-24+220 | 700-10-0 | 9-21-540 | 4- 7*493 | 4-14+341 | 4-21+ 0 | 4-28-185 | 5- 5+311 | | 5-12+169 | 5-19*189 | 5-26+342 |

| | | 59 | 72 | 114 | 2005 1555 2007 | 139 | 12. | 137 | 124 | £ 13. | 161 | 193 | 77 | | 9 " | 89 | 77 | 145 | 167 | 87 | 117 | 123 | 153 | 90, | 157 | 20. | 85 140 |
|------------------------|----------------|----------|---------|-----------|----------------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------------|-----------|-----------|-------------|--------------|-----------|------------|----------|-----------|
| | | 23 | 36 | 55 1 | 121 | 101 | 69 | 113 | 11001 | 22, | 42 | 112 | 64 | 40, | 98 | , , | 01 | 103 | 149.2 | 60% | 119 | 82,1 | 114 | 109 | 178 178 | 34. | 55 55 |
| | | 180 | 93 | 102 | 176 | 137 | 96 | 129 | 118 | 131 | 116 | 186 | 85 | 155 | 96 | 81 | 44 | 156 | 165 | 122 | 138 | 177 | 187 | 165 | 16 | 78 | 81 |
| | | 87 | 54 | 682 | 162 | 376 | 172 | 152 | 63 | 55 | 9 | 376 | 25 | 82 | 9 6 | 9 | 99 | 250] | 1257 | 76 | 85 | 132 | 235 | 88 | 168 | 11 | 140 |
| ОНЮ | | 51 | 12 | 96 | 120 | 88 | 19 | 118 | 155 | 80 | 114 | 129 | 53 | 2 | 12 | 67 | 54 | 103 | 147 | 69 | 109 | 114 | 109 | 61 | 125 | 0 | 0 |
| | | 38 | 88 | 9 | 119 | 11 | 8 4 | 95 | 9 | 38 | 20 | 172 | 9 | 4 5 | 9 | 28 | 27 | 66 | 66 | 45 | 44 | 0 | 180 | 20 | 1 26 | 0 | 8 5 |
| ELAI | | 49 | 4 | 4 | 191 | 134 | 68 | 153 | 127 | 98 | 53 | 140 | 66 | 26 | 159 | 114 | 10 | 162 | 259 | 113 | 151 | 111 | 131 | 85 | 236 | 41 | 82 |
| CLEVELAND, | | 0 | 0 | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 |
| FOR C | | 0 | 0 | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| F | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ٥ | 0 | 0 | 0 | 0 | 0 | 0 |
| $\mu g/m^3$ | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ä | | 0 | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • |
| AIR-POLLUTION DATA (IN | particulate | 23 | 36 | 55 | 121 | 101 | 69 | 113 | 110 | 22 | 24 | 112 | 49 | 40 | 86 | 90 | 0 | 103 | 149 | 9 | 119 | 82 | 114 | 9 | 178 | 34 | 55 |
| NO | artic | 40 | 7. | 84 | 148 | 102 | 57 | 132 | 103 | 93 | 99 | 140 | 52 | 99 | 75 | 0 | 63 | 100 | 124 | 69 | 93 | 128 | 118 | 88 | 102 | 41 | 76 |
| LUT | | 62 | 13 | 0 | 141 | 133 | 83 | 147 | 132 | 41 | 65 | 149 | 16 | 72 | 138 | 113 | 82 | 189 | 222 | 102 | 146 | 95 | 126 | 78 | 200 | 45 | 16 |
| POL | Suspended | 35 | 99 | 11 | 120 | 11 | 114 | 83 | 53 | 36 | 57 | 198 | 38 | 54 | 19 | 25 | 36 | 95 | 83 | 21 | 14 | 88 | 161 | 47 | 112 | 31 | 81 |
| AIR- | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • |
| DNI | nded | 0 | 26 | 29 | 121 | 83 | 53 | 16 | 62 | 37 | 96 | 119 | 32 | 48 | 41 | 4 | 37 | 82 | 110 | 48 | 28 | 3 6 | 102 | 58 | 99 | 23 | 58 |
| ME | (a) Concluded. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IR-S/ | (a) | 53 | 78 | 59 | 119 | 66 | 80 | 91 | 53 | 56 | 45 | 166 | 46 | 32 | 54 | 4 | 33 | 105 | 109 | 20 | 61 | 88 | 147 | 57 | 8 | 53 | 84 |
| 24-HOUR-SAMPLING | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 39 24 | | 58 | 87 | 101 | 166 | 159 | 86 | 167 | 348 | 90 | 160 | 169 | 121 | 83 | 147 | 136 | 225 | 176 | 202 | 118 | 158 | 152 | 144 | 241 | 267 | 69 | 76 |
| 1969 | | 96 | 179 | 126 | 203 | 226 | 112 | 400 | 443 | 101 | 166 | 231 | 289 | 111 | 322 | 284 | 228 | 319 | 427 | 233 | 310 | 212 | 178 | 226 | 381 | 76 | 122 |
| tinued | | . 31 | 79 | 4 | 106 | 69 | 136 | 83 | - 56 | 4 | 72 | 215 | 39 | 83 | • | 67 | 53 | 103 | 8 | 57 | 3, | 105 | 155 | 51 | 7, | | • |
| - Conti | | 37 | 78 | 55 | 117 | 82 | 98 | 93 | 59 | 35 | 35 | 179 | 33 | 45 | 116 | 53 | 37 | 108 | 103 | 28 | 85 | 116 | 165 | 47 | 105 | 46 | 8 |
| · : | | 34 | 36 | 61 | 129 | 92 | 99 | 149 | 111 76 | 31 | 48 | 131 | 19 | 55 | 8 | 83 | 4 | 101 | 141 | 16 | 143 | 86 | 129 | 54 | 191 | 96 | 61 |
| тавск ш. | | 87 | 86 | 79 | 0 135 129 | 0 105 | 2 | 0 112 149 | | 8 | 0 104 | 161 071 0 | 0 70 | 0 122 | 74 | 78 | 74 | 0 139 107 | 0 141 141 10 | 0 111 | 0 103 143 | 0 166 98 11 | 0 136 129 16 | 0 114 | 0 121 191 | 47 0 | 0 114 |
| [AB] | | 0 | 0 | 0 | | | 0 | | 0 | 0 | | | | | 0 | 0 | 0 | | | | | | | | | | |
| - | | 57 | 63 | 63 | 0 134 | 66 | 0 120 | 0 106 | 75 | 88 | 76 | 106 0 | 53 | 0 107 | 86 | 64 | 41 | 0 114 | 0 148 | 0 116 | 0 100 | 0 114 | 0 187 | 55 | 0 128 | 99 | 97 |
| | | 0 | 0 | 0 | | 0 | | | 0 | 0 | 0 | | 0 | | • | 0 | 0 | | | | | | | ٥ | | 6 | 0 |
| | | 9-25-100 | 9-28 88 | 10- 2*235 | 10- 6+355 | 10- 9+455 | 10-12-132 | 10-16•224 | 10-20+146 | 10-23 95 | 10-28*112 | 10-30-481 | 11- 4-148 | 11- 7- 98 | 11-13+158 | 11-15+117 | 11-19-153 | 11-22+305 | 11-25+216 | 11-28-126 | 12- 2•193 | 12- 5+197 | 12-10+248 | 12-14+125 | 12-17*239 | 12-22* 0 | 12-26+106 |

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| 50 | 231 203 267 443 602 0 186 0 191 0 229 345 218 251 0 0 0 0 0 303 192 185 682 334 251 | 12 | 4. |
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| 87 0 41 0 64 31 28 28 96 58 0 20 0 23 0 31 42 41 22 0 0 0 0 41 27 51 34 48 22 | 0 35 | 0 10 | 0. 0. 42.8 48.0 107.8 37.4 33.5 43.0 34.9 0. 0. 0. 40.3 119.1 50.1 117.7 59.0 42.2 41.8 88.9 0. 0. 0. 65.9 33.2 56.2 |
| <u>-</u> | 8 | ğ | .0 |
| 6 0 | MAX 608 0 326 0 287 | 61 | 117. |
| Z | MAX | MEAN 199 0 106 0 118 87 81 84 223 150 0 71 0 75 0 79 127 95 87 0 0 0 0 0 122 74 94 142 137 87 | SGD |
| | | | |

ZERO IS NOT A MEASURED VALUE. IT INDICATES AN INVALIDATED READING.
MINUS ZERO IS NOT A MEASURED VALUE. IT INDICATES A NON-OPERATING STATION.
NOMENUMBER OF READINGS OBTAINED DURING YEAR
AVG=ARITHMETIC AVERAGE
MEAN-GEOMETRIC MEAN
SGD=STANDARD DEVIATION MITH DIVISOR OF (N-1) NOTE

TABLE III. - Continued. 1969 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $_{\mu g/m}^3$) FOR CLEVELAND, OHIO

(b) Nitrogen dioxide

| | AVG | XAX | 214 | 331 | 2/4 | | 271 369 | 297 | 383 | 211 | | 017 | 312 | 4 481 | 172 | 232 | 213 | *15 Q | 100 88 345 | 258 | 323 | 248 | 343 | 212 | 351 | 0 398 | 243 | 358 | 351 | 0 | 0 | 338 | 211 | 0 313 246 | 291 | |
|--|-----|------|--------------|-----|------------|----------|---------|----------|-----|--------------|----|-----------------------|--------------|-------|--------------|-----|--------------|-------|---------------|--------------|-----|-----------|-----|-----------|--------------|-------|--------------|--------------|-----|---------|---|--------------|------------|--------------|-----|--------------|
| PTC HNR H.S | | Z | | ≏ | 0 - | | 271 | 0 | 244 | 0, | 77 | 30 | | Ó | 0 | | ٠; | 977 | 88 | 0 | 202 | ٥: | 186 | - | 10 | 3 | i | 200 | 6 | 0 | _ | 14 | | 2 2 C | 3 | 166 |
| FIR 1 | | | 0 | , | > | c | • | 0 | | 0 | • | > | 0 | | 0 | | 0 | • | > | 0 | | 0 | • | 0 | 0 | • | 0 | c | • | 0 | • | > | 0 | c | • | 0 |
| 프로 프로 | | | 0 | , | ٠ | c | • | 0 | | 0 | • | > | O | | 0 | | 0 | • | > | 0 | | ပ | • | 0 | Ç | , | 0 | • | , | 0 | • | > | o | 0 | , | 0 |
| BEN DCT H.S | | | 0 | , | > | c | • | 0 | | 0 | • | > | 0 | | 0 | | 0 | • | > | 0 | | 0 | • | 0 | 0 | • | 0 | • | • | 0 | • | > | 0 | 0 | , | 0 |
| TST. | | | 115 | | 007 | c | • | 0 | | 123 | | 967 | 23.8 | | 133 | | 133 | ć | 8 | 323 | | 235 | | 137 | 213 | } | 204 | 103 | ? | ပ | | (2 | 168 | 24.7 | | 168 |
| 2. C. C. | | | 0 | | 707 | c | • | 0 | | 526 | | 877 | 300 | | 177 | | 250 | 6 | 2 | 240 | | 233 | | 199 | 369 | | 238 | 176 | | 0 | | 807 | 503 | 291 | | 264 |
| 를 있습 다 있 요 요 요 요 요 요 요 요 요 요 요 요 요 요 요 요 요 요 | | | 0 | | > | c |) | 0 | | 0 | | > | 0 | | 0 | | 0 | | | 0 | | 0 | | 0 | 0 | | 0 | c | | 0 | | • | 0 | | | 0 |
| 4. E. N. T. E. T. E. N. T. E. | | | 0 | • | > | c | • | 0 | | 0 | • | > | 0 | | 0 | | 0 | • | > | 0 | | 0 | • | 0 | 0 | • | 0 | • | • | 0 | • | > | 0 | 0 | • | 0 |
| SVA | | | 0 | • | 0 | • | • | 0 | | 0 | • | > | 0 | | 0 | | 0 | • | > | 0 | | 0 | • | 0 | 0 | • | 0 | c | • | 0 | • | > | 0 | c | • | 0 |
| SEC | | | 0 | (| > | c | • | 0 | | 0 | • | > | 0 | | 0 | | 0 | • | > | 0 | | 0 | • | 0 | 0 | • | 0 | c | • | 0 | • | > | 0 | c | • | 0 |
| ST. JSP H.S | | | 0 | • | 5 | c | • | 0 | | 0 | • | > | 0 | | 0 | | 0 | • | > | 0 | | 0 | • | 0 | 0 | • | 0 | • | • | 0 | • | > | 0 | o | • | 0 |
| | | | 0 | • | Э | • | • | 0 | | 0 | • | > | 0 | | 0 | | 0 | • | > | 0 | | 0 | • | 0 | 0 | • | 0 | c | • | 0 | • | > | 0 | o | • | 0 |
| ADA For | | | 0 | • | > | c | • | 0 | | 0 | • | > | 0 | | 0 | | 0 | • | > | 0 | | 0 | • | 0 | 0 | • | 0 | c | • | 0 | • | > | 0 | 0 | • | 0 |
| FIR STA =29 | | | 0 | | 9 | • | • | 0 | | 0 | • | > | C | | 0 | | 0 | • | > | 0 | | 0 | • | 0 | 0 | • | 0 | c | • | 0 | • | > | ٥ | 0 | • | 0 |
| 유민국 | | | 0 | • | > | c | • | 0 | | 0 | • | > | 0 | | 0 | | 0 | (| > | 0 | | 0 | • | 0 | 0 | • | 0 | c | • | 0 | • | > | 0 | c | • | 0 |
| P. E. | | | 0 | • | > | • | • | 0 | | 0 | • | > | 0 | | 0 | | 0 | • | > | 0 | | 0 | • | 0 | 0 | • | 0 | c | • | 0 | • | • | 0 | 0 | • | 0 |
| JFK H.S | | | 238 | | 238 | • | • | 0 | | 162 | | 134 | 258 | | 164 | | 200 | *** | † 0 | 202 | | 186 | 9 | 193 | 351 | : | 150 | 211 | | 0 | : | 11 | 150 | 285 | | 186 |
| HR V YAR | | | 0 | • | 0 | C | • | 0 | | 0 | • | > | 0 | • | 0 | | 0 | • | > | 0 | | 0 | • | 0 | 0 | • | 0 | • | • | 0 | • | > | 0 | 0 | • | 0 |
| GEOWAS | | | 161 | | 147 | • | • | 0 | | 135 | | 101 | 204 | | 112 | | 126 | Ċ | , | 238 | | 215 | | 242 | 260 | | 338 | 727 | ; | 0 | | 740 | 181 | 166 | | 166 |
| SC SC E | | | 0 | • | > | ç | • | 0 | | 0 | • | > | 0 | | 0 | | 0 | • | > | 0 | | 0 | • | 0 | 0 | • | 0 | c | • | 0 | • | > | 0 | 0 | • | 0 |
| FIR STA | | | Ŷ | (| 7 | q | • | î | | P | • | 7 | 9 | | ٩ | | 9 | • | 1 | ٩ | | Ŷ | • | P | 9 | • | ° | ç | • | Ŷ | • | 2 | Ŷ | 9 | • | ? . |
| FIR STA =13 | | | 208 | | 770 | 360 | | 309 | | 448 | , | 707 | 409 | | 235 | | 251 | ; | 177 | 318 | | 266 | ; | 269 | 376 | : | 309 | 26. | ; | 0 | į | 9/7 | 313 | 267 | | 284 |
| EST BRK REC | | | 213 | | 303 | 17.0 | : | 285 | | 264 | | | 336 | | 159 | | Ο, | 6 | 630 | 244 | | 229 | į | 255 | 362 | | 199 | 107 | | 0 | 6 | 776 | 173 | 251 | • | 267 |
| 3 W W | | | 255 | | 50 | • | • | 0 | | 231 | | 997 | 247 | I | 212 | | 229 | 6 | 202 | 260 | | 0 | • | 0 | 398 | | 238 | 204 | | 0 | | 1/7 | 238 | 246 | 2 | 244 |
| 100 to 10 | | | 0 215 148 25 | | 213 195 50 | • | | 0 | | 0 255 161 23 | | 91 791 7 6 7 N | 0 327 320 24 | | 0 170 168 21 | | 0 204 244 22 | | 07 001 701 | 0 285 262 26 | | 208 | | 162 | 0 398 314 39 | | 0 253 213 23 | 0 264 191 20 | : | 0 | | 17 167 117 0 | 193 193 23 | 249 224 24 | | 0 258 209 24 |
| 2 E C | | | 215 | į | 213 | 20g | 2 | 0 267 | | 258 | , | 747 | 327 | | 170 | | 204 | | 701 | 285 | | 0 247 208 | 9 | 0 188 162 | 398 | : | 253 | 366 | | 0 | | 117 | 193 | 249 | 1 | 258 |
| E E E | | | 0 | (| > | c | • | 0 | | 0 | • | > | 0 | | 0 | | 0 | • | > | 0 | | | (| 0 | 0 | • | 0 | C | • | 0 | • | > | 0 | ٥ | | 0 |
| YAC | | | 0 331 | | 731 | 420 | | 0 383 | | 0 144 | | CT7 0 | 0 481 | | 0 173 | | 0 314 | | 0 940 | 0 222 | | 343 | ; | 311 | 1351 | , | 0 226 | 326 0 | | 0 | | 956 0 | 0 204 | 229 | ì | 0 323 |
| AIR ADB BKL CLE CLE COL CU Pol J4S YMC HLT PNE WOO RE OFC | | | | • | 0 | c | • | 0 | | 0 | • | > | 0 | | 0 | | 0 | • | > | 0 | | 0 | (| 0 | • | • | ٥ | • | • | 0 | • | > | ٥ | ٥ | • | 0 |
| POL OFC | 1 | DATE | 1- 7+233 | | 1-14+535 | 1-21-305 | | 1-28+244 | | 2- 4-177 | | cc7+11-7 | 2-18-314 | | 2-25+186 | | 3- 4+209 | | 9-11-108 | 3-17+246 | | 3-24-267 | | 3-31+168 | 4- 7+372 | | 4-14-313 | A-214253 | | 4-28* 0 | | 967-6 | 5-12+304 | 5-19+253 | | 5-26+282 |

26 E-6635

TABLE III. - Continued. 1969 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $_{\mu g/m}^3$) FOR CLEVELAND, OHIO

| | 140 | 163 | 185 | 233 | • | • • | 191 | ຸີຈ | 153 | ٠ <u> </u> | 276 | 166 | 168 | 197 | 163 | 140 | 233 | 221 | 186 | 177 | 201 | " | 189 | 247 | 161 | ຸ້ທ | | |
|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-------------------|--------------|-----------|---------------|--------------|--------------|-----------|-----------|--------------|--------------|--------------|--------------|--------------|--------------|-----------|--------------|-----------|-----------|------------|-----------|----|--------------|
| | o° | 0.5 | 103 | | -0- | io° | ် _ဝ ဉ် | 30: | io° | °ဝှ | 0 0 | 205 | ₹°° | 0; | 30° | ۰0 | 0, | 102 | - | 303 | 10. | ` < | 20. | 303 | å o : | 10 21 | 0 | 0 |
| | ٥ | 0 | 0 | ပ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ပ | 0 | O | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | ٥ | 0 | 0 | Ü | 0 | 0 | 0 | 0 | O | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Ö | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 66 | 211 | 146 | 191 | 569 | 146 | 162 | 162 | 133 | 0 | 322 | 168 | 153 | 506 | 139 | 139 | 278 | 524 | 177 | 164 | 190 | 273 | 500 | 258 | 0 | 0 | 7. | 188 |
| | 130 | 142 | 159 | 0 | 276 | 146 | 206 | 179 | 184 | 168 | 255 | 144 | 153 | 199 | 157 | 153 | 237 | 217 | 191 | 157 | 186 | 191 | 150 | 224 | 153 | 184 | 70 | 218 |
| | ٥ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ٥ | 0 | 0 | 0 | 0 | 0 | 0 |
| | ٥ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • |
| | ٥ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • |
| | Θ. | 0 | O | 0 | 0 | 0 | 0 | 0 | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • | 0 |
| e e | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| lioxic | ٥ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • |
| gen d | ۵ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nitrogen dioxid | ٥ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | ٥ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • | ٥ | 0 | ٥ | 0 | 0 | 0 | 0 | 0 | 0 |
| (b) Concluded. | 114 | 121 | 170 | 190 | 171 | 83 | 126 | 117 | 126 | 137 | 200 | 103 | 114 | 133 | 66 | 86 | 168 | 170 | 152 | 144 | 173 | 161 | 150 | 191 | 126 | 179 | * | 168 |
| Con Con | ٥ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ٥ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <u>e</u> | 85 | 155 | 168 | 242 | 0 | 0 | 182 | 159 | 81 | 126 | 313 | 190 | 137 | 213 | 148 | 128 | 244 | 244 | 177 | 181 | 202 | 295 | 161 | 262 | 115 | 219 | 70 | 197 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ٥ | 0 | 0 | 0 | 0 | 0 | 0 |
| | 153 | 117 | 202 | 247 | 313 | 133 | 247 | 247 | 130 | 193 | 287 | 220 | 161 | 228 | 145 | 148 | 150 | 238 | 219 | 226 | 186 | 208 | 175 | 313 | 166 | 155 | 52 | 225 |
| | 179 | 171 | 213 | 253 | 264 | 162 | 206 | 220 | 179 | 186 | 217 | 179 | 159 | 215 | 188 | 161 | 226 | 206 | 164 | 170 | 155 | 197 | 152 | 222 | 148 | 177 | 16 | 252 |
| | 204 | 168 | 184 | 211 | 266 | 195 | 141 | 173 | 141 | 235 | 305 | 121 | 211 | 0 | 217 | 123 | 284 | 240 | 206 | 152 | 244 | 262 | 233 | 260 | 0 | 0 | 11 | 225 |
| | 148 | 146 | 159 | 233 | 262 | 186 | 184 | 166 | 179 | 0 209 137 197 | 304 | 157 | 81 | 215 | 162 | 155 | 247 | 231 | 168 | 181 | 246 | 242 | 208 | 24.7 | 152 | 220 | 72 | 220 |
| | 0 153 103 | 0 157 191 | 217 15 | 264 23 | 224 26 | 126 18 | 0 229 202 16 | 0 193 168 16 | 0 173 168 | 137 | 0 280 211 30 | 0 208 142 15 | 334 135 | 0 228 148 | 0 237 123 16 | 0 159 121 15 | 0 305 204 24 | 0 262 184 23 | 0 229 159 16 | 0 206 153 18 | 262 168 | 0 238 164 24 | 206 20 | 226 | 238 144 15 | 173 | 7 | 0 236 196 22 |
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| | *128 | • | •238 | *267 | •220 | *152 | *182 | * 179 | *121 | *175 | •253 | •144 | *141 | *195 | •146 | +155 | •193 | •179 | •150 | •152 | •166 | •219 | •164 | .237 | •139 | •162 | 73 | 219 |
| | 9-25*128 | 9-28 | 10- 2-238 | 10- 6*267 | 10- 9*220 | 10-12+152 | 10-16*182 | 10-20+179 | 10-23+121 | 10-28*175 | 10-30-253 | 11- 40144 | 11- 7+141 | 11-13*195 | 11-15+146 | 11-19+155 | 11-22*193 | 11-25•179 | 11-28*150 | 12- 2+152 | 12- 5+166 | 12-10+219 | 12-14-164 | 12-17*237 | 12-22+139 | 12-26•162 | N | AVG |
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NOTE ZERO IS NOT A MEASURED VALUE. IT INDICATES AN INVALIDATED READING.
MINUS ZERO IS NOT A MEASURED VALUE. IT INDICATES A NON-OPERATING STATION.
NUM=VUMBER OF READINGS OBTAINED DURING YEAR
AVG=ARITHMETIC AVERAGE
MEAN-GEOMETRIC MEAN
SGD=STANDARD DEVIATION WITH DIVISOR OF (N-1)

| | | | | 128 | | 906 | 140 | | | _ | | 109 | | 95 | 51 | 674 | 80.5 | 316 | | | 38.5 | | | 131 335 |
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| VEL | | CLE | | 0 | 100 | 0 | • | 86 | 78 | 90 | 52 | 241 | 75 | 141 | 37 | 103 | 103 | 45 | 57 | 63 | 10 | 2 | 249 | 85 |
| CLE | | PSO | | 0 | • | 0 | 0 | • | • | 0 | - | 0 | 0 | 0 | 0 | - | 0 | • | 0 | • | 0 | 0 | 0 | • |
| F. | | SH TEN | | 0 | • | • | • | • | • | 0 | • | - | • | 0 | • | • | 0 | • | • | 0 | • | • | • | 0 |
| , mg/m ³) | | S S S S S S S S S S S S S S S S S S S | | 0 | 0 | 0 | 0 | 0 | ۰. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
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| N DA | | A RED S A.S | | 5 | • | 0 | 0 | • | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0. | 0 | 0 | 0 |
| UTIO | | A ADM | | 5 | 0 | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ó | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OLL | xide | ALM FIR ELM STA CHL #29 | c | 5 | 0 | 0 | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IR-P | Sulfur dioxid | P.L AI DNB EI ELE CH | ć | 5 | 0 | • | • | 0 | • | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NG A | Sulfu | JFK P H.S D | ŭ | C | 31 | • | 0 | 25 | 32 | 65 | 96 | 20 | 45 | 30 | 35 | 04 | 09 | 20 | 10 | 9 | S | 32 | 98 | 14 |
| MPL | (c) | HRV J | • | > | 0 | 0 | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN | | GEO F MAS Y | į | ~ | 90 | 0 | 0 | 45 | 108 | 37 | 30 | 09 | 52 | 20 | 24 | 52 | 0 | 50 | 50 | 35 | 25 | 11 | 52 | 45 |
| HOU | | SCR V | • | > | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ٥ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 9 24- | | FIR STA | 9 | 5 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | P | P | ٩ | 9 | ٩ | 9 | Ŷ | P | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | 9 |
| 1969 | | FIR STA *13 | ; | 3 | 98 | 25 | 89 | 178 | 128 | 272 | 2 | 156 | 65 | 178 | 27 | 99 | 63 | 22 | 9 | 20 | 12 | 55 | 83 | 100 |
| nued. | | EST BRK REC | ; | 7 | 9 | 86 | 126 | 32 | 32 | 173 | 15 | 0 | 15 | 30 | 52 | 15 | 20 | 12 | 0 | 40 | 83 | 'n | 25 | 214 |
| - Continued | | 3 m m | | 6 | 5 | • | 0 | 41 | 27 | 22 | 22 | 55 | 27 | 55 | ٥ | • | 35 | 17 | 0 | 65 | 17 | 2 | 0 | 63 |
| | | COL #00 H. S | | P 7 7 | 146 | 0 | • | 88 | 93 141 | 45 | 20 | 47 | 15 | 189 | 9 | 35 | 9 | 90 | 63 | 52 | 27 | 20 | 37 | 78 |
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| | | BKL YMC | | 2 | 0 70 | 0 100 | 0 126 | 75 0 | 0 32 | 0 221 | 72 0 | 0 100 | 0 78 | 0 35 | 0 52 | 0 15 | 0 108 | 0 32 | 0 20 | 0 70 | 89 0 | 0 25 | 0 27 | 0 335 |
| | | R ADB | | | | | | | | | | | | | | • | | | | | | | | |
| | | AIR POL OFC | DATE | 66 = 2 - 7 | 1-14* 55 | 1-21+115 | 1-28+284 | 2- 4+ 70 | 2-11+ 50 | 2-18+229 | 2-25+ 68 | 3~ 4*156 | 3-11- 47 | 3-17= 68 | 3-24+123 | 3-31+ | 4- 7* 63 | 4-14* 45 | 4-21+ 50 | 4-28+ 75 | 5- 5+ 63 | 5-12+ 32 | 5-19• 63 | 5-26#322 |

TABLE III. - Concluded. 1969 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $\mu g/m^3$) FOR CLEVELAND, OHIO

| | 36 | 801 64 | 69 | , I | 0.80 | 707 | 101 | 76 | 45 | 1 89 | | | 105 | 68 | 40 146 58 | 58 58 | 39 | 217 | 669 | 36 | | 73 | 959 | 43 | 69 | 707 704 704 | | |
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| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | o | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • | 0 |
| | S | 25 | 55 | 113 | 20 | 115 | 89 | 37 | 12 | 37 | 234 | 9 | 35 | 100 | 75 | 65 | 163 | 75 | 23 | 10 | 103 | 554 | 90 | 123 | 0 | 0 | 73 | 99 |
| | 37 | 06 | 89 | 0 | 115 | 65 | 108 | 100 | 141 | 51 | 151 | 95 | 52 | 128 | 80 | 55 | 136 | 173 | 80 | 138 | 93 | 158 | 100 | 214 | 20 | 110 | 72 | 102 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
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| loxid | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sulfur dioxide | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ٥ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sul | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ıded. | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (c) Concluded | 22 | 55 | 20 | 96 | 52 | 22 | 55 | 41 | 27 | 45 | 103 | 10 | 30 | 0 | 37 | 30 | 78 | 80 | 57 | 52 | 86 | 110 | 85 | 0 | 45 | 128 | 73 | 54 |
| <u>(</u> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 5 | 41 | 41 | 131 | 0 | 0 | 65 | 20 | 15 | 4 | 234 | 45 | 25 | 4 | 37 | 40 | 146 | 80 | 20 | 45 | 108 | 221 | 95 | 90 | 45 | 163 | 72 | 55 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • | 0 |
| | 15 | 113 | 52 | 141 | 211 | 78 | 93 | 252 | 45 | 120 | 173 | 95 | 9 | 113 | 22 | 45 | 45 | 163 | 85 | 156 | 105 | 143 | 287 | 299 | 9 | 68 | 52 | 113 |
| | 13 | 93 | 63 | 156 | 120 | 20 | 168 | 138 | 52 | 90 | 206 | 52 | 20 | 146 | 103 | 93 | 128 | 153 | 82 | 196 | 83 | 108 | 90 | 110 | 57 | 90 | 7.7 | 110 |
| | 22 | 63 | 30 | 105 | 45 | 178 | 57 | 22 | 15 | 9 | 332 | 30 | 0 | 0 | 41 | 30 | 138 | 9 | 20 | 47 | 95 | 236 | 68 | 68 | 0 | 95 | 11 | 62 |
| | 22 | 20 | 32 | 113 | 57 | 110 | 55 | 32 | 20 | 9 | 241 | 32 | 7 | 75 | 75 | 45 | 120 | 75 | 47 | 9 | 83 | 211 | 78 | 100 | 47 | 73 126 | 71 | 57 |
| | 10 | 32 | 73 | 0 153 141 | 73 | 63 | 161 | 0 70 118 | 17 | 22 | 0 226 118 241 | 55 | 35 | 80 | 78 68 | 47 | 0 194 120 120 | 0 176 138 | 78 63 | 153 | 85 | 112 021 E71 0 | 0 105 75 | 0 133 241 100 | 0 204 20 | | 75 | 75 |
| | 0 108 | 0 126 | 0 70 73 | 153 | 85 | 75 | 0 103 161 | 20 | 0 105 | 0 131 | 226 | 0 105 | 0 183 | 95 | | | 194 | 176 | 78 | 0 123 153 | 0 115 | 173 | 105 | 133 | 204 | 204 | 75 | 0 107 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 45 | 55 | 35 | 0 120 | 0 103 | 0 163 | 2 | 27 | 22 | 75 | 0 405 | 45 | 0 146 | 47 | 42 | 32 | 0 151 | 0 118 | 88 | 20 | 85 | 0 211 | 57 | 0 131 | 63 | 88 | 76 | 84 |
| | 0 | ٥ | 0 | | 0 | 0 | 0 | C | ٥ | 0 | | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | | 0 | ٥ | 0 | 0 | 0 | 0 |
| | • 78 | • | * 259 | 936 | * 282 | •103 | •211 | 09 • | • 73 | • 68 | •380 | * 75 | •103 | •115 | • 32 | 191• | *262 | •158 | * 75 | • 68 | * 80 | •166 | *108 | 171 | •100 | * 138 | 74 | 134 |
| | 9-25• 78 | 9-28* | 10- 2+259 | 10- 6*390 | 10- 9*282 | 10-12+103 | 10-16-211 | 10-20* 60 | 10-23+ 73 | 10-28* 68 | 10-30+380 | 11- 4* 75 | 11- 7+103 | 11-13+115 | 11-15* 32 | 11-19+161 | 11-22*262 | 11-25-158 | 11-28* 75 | 12- 2* 68 | 12- 5* 80 | 12-10+166 | 12-14+108 | 12-17-171 | 12-22+100 | 12-26+138 | N N | AVG |

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MAX

ZERO IS NOT A MEASURED VALUE. IT INDICATES AN INVALIDATED READING.
MINUS ZERO IS NOT A MEASURED VALUE. IT INDICATES A NON-OPERATING STATION.
NUM=NUMBER OF READINGS OBTAINED DURING YEAR
AVG=ARITHMETIC AVERAGE
MEAN=GEOMETRIC MEAN
SGD=STANDARD DEVIATION WITH DIVISOR OF (N-1) NOTE

Table IV. - 1970 24-Hour-sampling air-pollution data (in $_{\mu g/m}^3$) for cleveland, ohio

(a) Suspended particulate

| 9 | < | 289 | 127 | 281 | 156 | 132 | 112 | 837 | 67 | 108 | 343 | , 658 128 | 407 116 | 109 | 5 253 149 | 160 | | 4 10 1 | 128 | 172 | 235 |
|--|------------------|----------|---------------|-----------|------------|--------------|----------|----------|---------|-----------|------------|--------------|------------|----------|--------------|--|-----------------|------------|----------|------------|------------|
| ည်ကိုလ | NI 6 | 7 4 | ر 1 و 1 | 0 27 | ريّ و | ر دن د | 158 | 84° | , | ر في ' | * 0 | 727 | 35 98 | ૢૢ૽૽ૺ | 65 126 | 3 5 1 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 | 97 174 93 | , ° | 70 | ? ; | 143 co |
| FIR PT | 6 | 93 4 | 64 11 | 108 | 190 17 | 169 14 | 0 15 | 86 | 0 | 21 16 | 83 | 407 | 148 9 | 5 21 | 138 12 | 174 13 | 86 17 | 5 | 174 | 164 | |
| | 69 | _ | ~ | D7 | | | 06 | 72 | m | 83 17 | 25 | 35 4(| 17 1/ | 95 11 | 80 | 0 | 8 | 9 14 | | | 7 |
| 9 9 9 8 | | ~ | 3 | 11 | 130 | 127 | | | æ | | | 3 | | | 24 | 5 18 | 0 12 | 3 11 | 3 153 | 143 | 61 8 |
| BEN DCT K. S | 18 | 73 | • | 93 | 194 | 189 | 135 | 80 | • | 103 | 9 | • | 101 | 107 | 152 | 146 | | = | 133 | 137 | 303 |
| S.T. | 78 | 53 | 80 | 73 | 66 | 18 | 72 | 55 | 52 | 55 | 35 | 9 | 7.1 | 6 | 142 | 97 | 92 | 0 | 0 | Ŷ | Ö |
| CLE CLN | 103 | 65 | 157 | 121 | 160 | 145 | 138 | • | 110 | 136 | 50 | 256 | 123 | 116 | 164 | 207 | 311 | 184 | 210 | 273 | 266 |
| PSSO | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | P | Ŷ | 9 | P | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | 9 | Ŷ | ٩ |
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| SVN BLD | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | P | ٩ | ٩ | Ŷ | 9 | Ŷ | Ŷ | Ŷ | ٩ | ٩ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ |
| SUP CEN | Ŷ | Ŷ | ٩ | ٩ | ٩ | ٩ | P | ٩ | ٩ | Ŷ | P | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | ٩ | P | Ŷ | Ŷ |
| ST. JSP H. S | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | P | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | 122 | 143 |
| - 5 E | 52 | 4 | 0 | 65 | 102 | 8 | 49 | 52 | 0 | 67 | 0 | 12 | 69 | 99 | 97 | 98 | 101 | 92 | 113 | 144 | 166 |
| ADA ADA A.S | 65 | 11 | 99 | 0 | 183 | 133 | 0 | 80 | 48 | 110 | 67 | 120 | 137 | 104 | 111 | 167 | 199 | 120 | 131 | 200 | 165 |
| FIR STA =29 | 103 | 63 | 162 | 109 | 185 | 190 | 141 | 108 | 0 | 153 | 86 | 114 | 193 | 95 | 134 | 183 | 260 | 130 | 139 | 152 | 320 |
| AL R | 61 | 9 | 73 | 99 | 86 | 82 | 1 | 58 | 53 | 99 | 27 | 11 | 72 | 65 | 163 | 103 | 103 | 95 | 93 | 187 | 159 |
| P.L DNB ELE | Ŷ | Ŷ | 9 | Ŷ | Ŷ | 9 | ٩ | 9 | Ŷ | Ŷ | 9 | ? | Î | Ŷ | ٩ | P | ٩ | 9 | Ŷ | ٩ | 0 |
| H. S. S. | 55 | 47 | • | * | 137 | 98 | 0 | 58 | 0 | 74 | 38 | 80 | 4 | 67 | 92 | 97 | 146 | 51 | 119 | 120 | 233 |
| HR YAR | Ŷ | Ŷ | 9 | Ŷ | ٩ | Ŷ | Ŷ | 9 | ° | Õ | P | Ŷ | Ŷ | Ŷ | 9 | P | ٩ | Ŷ | Ŷ | ٩ | ٩ |
| GEO WAS ELE | 57 | \$ | 15 | 11 | 16 | 85 | 89 | 5,4 | 56 | 9 | 27 | 106 | 99 | 78 | 149 | 145 | 121 | 73 | 82 | 140 | 161 |
| SCH V | Ŷ | ٩ | 9 | 0 | ٩ | Ŷ | Ŷ | ٩ | ٩ | 0 | ? | Ŷ | Ŷ | Ŷ | Ŷ | 9 | Ŷ | Ŷ | ٩ | ٩ | 9 |
| FIR STA =19 | 122 | 78 | 131 | 124 | 136 | 119 | 228 | 144 | 104 | 110 | 658 | 208 | 226 | 182 | 0 | 248 | 485 | 203 | 84 | 170 | 215 |
| FIR STA =13 | 203 | 127 | 281 | 149 | 401 | 285 | 0 | 194 | • | 343 | 140 | 208 | 167 | 253 | 167 | 284 | 416 | 207 | 156 | 190 | 354 |
| EST BRK REC | 57 | 49 | 27 | 2 | 115 | 109 | 7 | 29 | 4 | 14 | 41 | 80 | 11 | 80 | 136 | 100 | 111 | 82 | 116 | 176 | 161 |
| CEC | 9 | 56 | 57 | 67 | 109 | 82 | 79 | 26 | 9 | 7,4 | 30 | 88 | 12 | 79 | 161 | 113 | 138 | 86 | 90 | 145 | 165 |
| 4.00 4.00 4.00 5.00 5.00 5.00 5.00 5.00 | 98 | 43 | 64 112 | 99 | 141 | 127 | 136 | 81 | 20 | 16 | 37 | 84 | 84 | 117 | 100 | 130 | 196 | 112 | 20 | 146 | 193 |
| CLE CLE | -0 105 | -0 118 | 49 | -0 104 99 | -0 190 141 | -0 184 127 | -0 0 136 | -0 110 | 0 | -0 124 | -0 105 | -0 120 | -0 207 | -0 171 | -0 160 100 | -0 145 130 | -0 239 196 | -0 154 112 | -0 150 | -0 200 146 | -0 401 193 |
| E F E S | | | Ŷ | Ŷ | Ŷ | | | | ٩ | | P | | | | Ŷ | | | | ٩ | | |
| PRL | 12 | 1 | 4 | 91 | -0 131 | -0 116 | -0 104 | -0 110 | 62 | 69 | 43 | 134 | 88 | 97 | -0 172 | -0 136 | -0 137 | -0 120 | -0 149 | -0 190 | -0 240 |
| ADB | Ŷ | ? | Ŷ | 9 | Ŷ | | | | Ŷ | ٩ | 0 | ° | 9 | Ŷ | 9 | | | | | | |
| AIR OFC | DATE 1- 20142 | 1- 6* 87 | 1- 8+ 91 | 1-11+210 | 1-13+181 | 1-17+149 | 1-20• 0 | 1-23-151 | 1-27. 0 | 1-29+148 | 2- 3*128 | 2- 6+120 | 2-10+179 | 2-12+144 | 2-14+231 | 2-18+317 | 2-20-272 | 2-25+304 | 2-28-145 | 3- 3-274 | 3- 6*395 |

TABLE IV. - Continued. 1970 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $\mu g/m^3$) FOR CLEVELAND, OHIO

(a) Continued. Suspended particulate

| 0 185 | 128 270 -0 135 | 0,140 | 0 163 | 0 198 | 0.117 | -0 103 | -0 200 130 300 | -0 93 -0 93 | C1C ++ -0-147 | -0 126 -0 366 | -0 191 | 128 307 -0 132 | 0.108 | 192 0 192 | -0 151 108 234 | -0.145 | -0 171 | 0 134 | -0 170 -0 170 | 0 125 | -0 204 | 0 190 | -0 181 | 98 | 1 <u>4</u> " | -0 258 | -0 167 | -0 173 -0 173 82 428 | 79 323 |
|---------|-------------------|----------|----------|----------|----------|--------|-------------------|----------------|------------------|------------------|----------|-------------------|----------|--------------|-------------------|------------|--------|-------|------------------|------------|------------|------------|--------|--------|--------------|------------|--------|----------------------------|--------|
| ' | • | ' | ĭ 0 | 7 | ' | • | | | • | ĩ o | 7 | ` ĭ | ĭ | ĭ | ĭ | Ť | ĭ | ĭ | ĭ o | 7 | 7 | ĭ | • | · T | | 7 | 7 | Ť | ĭ |
| 0 220 | 0 122 | 284 | | | 96 | 113 | 210 | 86 | 131 | | _ | _ | | _ | _ | _ | _ | • | • | ' | ' | ' | 9 | ' | ٩ a | • | ĭ | ĭ | ĭ |
| | | | ပ | - | • | 0 | 0 | 0 | 9 | 9 | ? | Ŷ | Ŷ | 1 | Î | Ŷ | P | 0 | 9 | ١ | ? | 9 | 9 | 9 | 0 | ? | 1 | 7 | 7 |
| 168 | - | 81 | 82 | 0 | 68 | 8 | 235 | 115 | 0 | 122 | 0 | 121 | • | 46 | 173 | 124 | 128 | • | 101 | 96 | 237 | 190 | • | 29 | • | 339 | • | 113 | 153 |
| ì | î | î | Ŷ | î | Ŷ | 9 | Ŷ | Ŷ | Ŷ | 9 | Ŷ | Ŷ | Ŷ | 3 | ٩ | 10 | î | ٩ | î | 0 | Ŷ | 9 | Ŷ | P | Ÿ | ٦. | 0 | ٥ | ٩ |
| 252 | 162 | 238 | 0 | • | 0 | 0 | ٩ | Ŷ | ٩ | 9 | î | Ŷ | ٩ | P | Ŷ | Ŷ | ٩ | Ŷ | î | Ŷ | Ŷ | î | 0 | ٩ | ٩ | î | Ŷ | Ŷ | ٩ |
| 9 | Ŷ | î | Ŷ | Ŷ | î | Ŷ | ٩ | ٩ | ٩ | 9 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | P | 9 | P | 0 | ٩ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | î | î | ٩ | Ŷ |
| Ŷ | Ŷ | 9 | P | 0 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | 9 | Ŷ | Ŷ | Ŷ | 0 | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | Ŷ | P | Ŷ | 9 | ٩ | Ŷ | ٩ | Ŷ |
| Ŷ | ٩ | Ŷ | Ŷ | ٩ | Ŷ | ٩ | ٩ | Ŷ | ٩ | P | ٩ | ٩ | ٩ | Ŷ | ٩ | Ŷ | ٩ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | ٩ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | Ŷ |
| ٩ | o- | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 567 | 0 | 0 | 151 | 49 | 0 | 366 | 397 | 0 | 281 | 128 | 0 | 239 | 0 | 360 | 0 |
| Ŷ | 9 | 9 | ٩ | ٩ | 9 | Ŷ | 140 | 44 | 116 | 0 | 0 | 0 | 101 | 116 | 136 | 159 | 8 | 88 | 0 | 101 | • | 0 | 0 | 0 | 0 | 0 | 0 | ٥ | 0 |
| 167 | 0 | 78 | 68 | 0 | 125 | 58 | 142 | 46 | 81 | 55 | 0 | 69 | 75 | 138 | 112 | 89 | 91 | 0 | 136 | 96 | 103 | 144 | 118 | ٥ | ٥ | 178 | 105 | 82 | • |
| 165 | 0 | 83 | 105 | 0 | 41 | 0 | 176 | 16 | 169 | 105 | 0 | 63 | 16 | 16 | 182 | 122 | 152 | 0 | 101 | 110 | 239 | 201 | 131 | 9 | 0 | 317 | 0 | 121 | 133 |
| 195 | 109 | 156 | 0 | 0 | 0 | 0 | 0 | ٥ | 0 | 0 | 0 | 174 | 111 | 198 | 206 | 284 | 332 | 171 | 126 | 101 | 230 | 216 | o | 75 | 164 | 343 | 111 | ٥ | 135 |
| 183 | 0 | 80 | 99 | 0 | 7, | 62 | 132 | 0 | 0 | 0 | 0 | 70 | 85 | 145 | 109 | 4 | 0 | 0 | 148 | 101 | 87 | 164 | 172 | 99 | 0 | 176 | 103 | 130 | 19 |
| 9 | 0 | Ŷ | Ŷ | Ŷ | o. | ٩ | ° | Ŷ | Ŷ | 0 | ٩ | ٥ | Ŷ | Ŷ | Ŷ | 9 | Ŷ | 0 | 232 | 183 | 139 | 401 | 450 | 112 | 0 | 194 | 163 | 428 | • |
| 138 | 0 | 74 | 82 | 0 | 53 | 0 | 120 | 62 | 85 | 42 | 0 | 85 | 0 | 87 | 151 | 105 | 119 | 0 | 100 | 63 | 172 | 162 | 119 | 55 | 0 | 742 | 0 | 102 | • |
| 9 | Ŷ | ° | ° | Ŷ | ٩ | ٥ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 166 | 0 | 128 | 125 | 352 | 205 | 243 | 160 | 353 | 0 | 239 | 263 | 191 |
| 128 | 101 | 0 | 0 | 0 | 0 | 0 | 145 | 20 | 49 | 95 | • | 67 | 98 | 66 | 112 | 95 | 0 | 0 | 140 | 90 | 48 | 54 | 125 | 21 | 0 | 180 | 113 | 125 | 0 |
| P | 0 | P | ٩ | Ŷ | 9 | P | ٩ | Ŷ | Ŷ | ٥ | Ŷ | o | o | Ŷ | P | 0 | Ŷ | Ŷ | 9 | 0 | Ŷ | 9 | 9 | ٩ | Ŷ | o | 9 | 9 | ٩ |
| 165 | 105 | 195 | 612 | 952 | 135 | 132 | 546 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 172 | 190 | 191 | 141 | 139 | 117 | 173 | 217 | 142 | 4 | 72 | 237 | 210 | 171 | 151 |
| 270 | 212 | 0 | 290 | 306 | 8.7 | 189 | 388 | 315 | 241 | 529 | 189 | 380 | 166 | 183 | 536 | 542 | 415 | 267 | 247 | 121 | 388 | 0 | 0 | 0 | 0 | 414 | 398 | 190 | 323 |
| 185 | 96 | 11 | 19 | 83 | 155 | 9 | 158 | 25 | 88 | 81 | 128 | 2 | 92 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 211 | 117 | 101 | 106 |
| 140 | 117 | 0 | 0 | 0 | 0 | 0 | 130 | 90 | 68 | 119 | 140 | 72 | 82 | 136 | 108 | 103 | 136 | 44 | 522 | 102 | 93 | 154 | 144 | 63 | 9 | 159 | 112 | 0 | 83 |
| 651 | • | 104 | 98 | 0 | 63 | 128 | 237 | 0 | 0 | 0 | 0 | 100 | 701 | 001 | 871 | 491 | 0 | 0 | 66 | 80 | 131 | 02.1 | 901 | 99 | 0 | | 155 | 801 | 119 |
| 206 159 | 0 | 0 | 0 | • | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 155 | 108 105 | 1 762 | -0 179 128 | -0 150 164 | 193 | 118 | 176 | -0 110 100 | -0 308 131 | -0 202 170 | 901 0 | 101 | 118 | -0 430 212 | 164 | 0 189 108 | 171 |
| 9 | 9 | o | o | 9 | Ŷ | 9 | ٩ | 9 | o | 0 | 0 | 9 | 0 | 9 | Ŷ | Ŷ | -0 193 | P | -0 176 | Ŷ | ę | Ŷ | Ŷ | -0 101 | P | o | P | 0 | 0 |
| 225 | 116 | 101 | 6 | 41 | 175 | 95 | 170 | o | 0 | 0 | • | 0 | 0 | 0 | 123 | 112 | 117 | 0 | 154 | 601 | 661 | 0 | 643 | 152 | 11 | 199 | 119 | 911 | 100 |
| 9 | 9 | 9 | 0 | -0 141 | 9 | 0 | 9 | o | o | 9 | 0- | 0 | ٩ | 9 | 9 | 6- | 0 | 9 | -0 154 | -0 100 | -0 139 | 9 | -0 149 | 9 | P | P | 9 | -0 116 | 9 |
| 0 | 212 | 252 | 121 | 505 | 332 | 0 | 376 | 132 | 414 | 332 | 307 | 92; | 529 | 909 | 0 | ٥ | 0 | 0 | 0 | 0 | 0 | ٥ | 0 | ٥ | 0 | 0 | 0 | 0 | 0 |
| 6-12* | 6-14+212 | 6-16+252 | 6-19+251 | 6-22+205 | 6-25+332 | 6-28 | 7- 1+376 | 7- 4*132 | 7- 7-414 | 7-10-232 | 7-13+307 | 7-16*276 | 7-19+259 | 7-22+508 | 7-25* | 7-28* | 7-31• | 8- 3* | 8- 6• | 8- 9 | 8-12• | 8-15 | 8-18* | 8-21• | 8-24 | 8-27* | 8-30 | 9- 2• | 9- 5 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

TABLE IV. - Continued. 1970 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $\mu g/m^3$) FOR CLEVELAND, OHIO

(a) Concluded. Suspended particulate

| 12-10+150 83 165 | 150 | 83 1 | 65 | 0 1 | .27 1 | 74 1 | 10 | 105 | 146 | 0 127 174 101 105 146 196 -0 | ٥ | 83 1 | 83 188 0 98 104 | 0 | 98 | 104 | 89 | 89 155 107 | 10. | 0 | 0 | Ŷ | Ŷ | Ŷ | Ŷ | 0- 0- 0- 0- 0- 0- 0- 0 | 9 | 0 | Ŷ | ٠ |
|---------------------------|-------------------------------------|-------|------|------|-------|--------|----|--------------|---------|---|--------|-----------------|---|-----------|---------|----------------------|-------|------------|-----|-------------|-----|---|---|---|--------|--------------------------|---------------|------------|------|----------------------------|
| 12-13* 59 96 43 | 66 | 96 | 43 | 0 | 09 | 80 | 45 | 42 44 263 73 | 263 | 13 | ٩ | -0 42 150 | | 37 | 43 | 34 | 12 | 64 35 | 35 | 0 | 0 | ٩ | 9 | 0 | o | 0- 0- 0- 0- 0- 0- 0- | Ŷ | Ŷ | 0 | -0 72 |
| 12-16. 0 | | 66 68 | 66 | 0 | 0 | 85 105 | | 82 | 144 | 82 144 124 -0 119 197 78 177 109 | P | 19 1 | 16 | 78 1 | . 77 | 601 | 83 | 95 | 75 | 0 | 0 | ٩ | Ŷ | 0 | o I | 0- 0- 0- 0- 0- 0- | Ŷ | Ö | 0 | 34 263 |
| 12-19+163 71 69 142 90 76 | £91 | 11 | 69 1 | 45 | 9 | 92 | 67 | 59 | 614 | 59 479 127 -0 71 0 | ٥ | 12 | | 81 | 15 | 81 75 60 167 | | 86 | 9 | 0 | 0 | Ŷ | 9 | 9 | 9 | 0- 0- 0- 0- 0- 0- | Ŷ | 9 | 0 | 75 197 -0 115 |
| 12-22+110 75 90 108 88 | 110 | 15 | 90 1 | 80 | | 82 | 85 | 72 | 0 | 72 0 93 -0 87 157 | P | 87 1 | 57 | 57 | 46 | 57 94 72 91 70 | 16 | | 09 | 0 | . • | 9 | 9 | 9 | ٩ | 0- 0- 0- 0- 0- 0- 0- | 9 | 9 | Ŷ | |
| 12-28+119 98 77 0 167 | 119 | 9.6 | 11 | 0 1 | 19: | 0 | 19 | 19 | 562 | 61 295 484 -0 123 0 | 0- | 23 | | 49 | 09 0 49 | 9 | 78 | 95 | 57 | 0 | 0 | Ŷ | Ŷ | 0 | 9 | 0- 0- 0- 0- 0- 0- | 9 | P | 0 | 57 157 -0_131 |
| 12-31+125 80 215 0 100 | 125 | 80 2 | 115 | 0 1 | | 0 18 | 0 | 151 140 112 | 140 | | 9 | -0 0 156 | | • | 0 199 | 661 | 87 | 87 78 141 | 141 | 0 | • | Ŷ | ٩ | ٩ | Ŷ | 0- 0- 0- 0- 0- 0- | ٩ | 0 | Ŷ | 57 484 -0 135 78 215 |
| NOW | 76 9 97 12 93 82 103 | ٠ | 16 | 12 | 93 | 82 1 | | 96 101 103 | 101 | 103 | • | 87 37 | | 89 31 | 31 | 90 93 88 | . 66 | 80 | 06 | 18 | 16 | 0 | 0 | 0 | 20 | 11 | 63 | 63 44 | 50 | 41 |
| AVG | 211 81 138 136 148 116 106 107 245 | 81 1 | 38 1 | 36 1 | 48 1 | 16 1 | 90 | . 201 | 245 | 175 | 0 | 95 1 | 95 190 95 193 100 149 119 99 101 224 | 95 1 | . 66: | 1001 | 64 | 119 | 66 | 101 | 224 | 0 | 0 | 0 | 175 | 0 175 69 130 155 158 121 | 130 | 155 | 158 | 121 |
| N I N | 59 18 42 52 59 37 | 18 | 74 | 25 | 59 | 37 | 15 | 15 14 63 43 | 63 | 43 | 0 | 27 | 27 66 16 1 27 53 3 29 40 25 | 91 | - | 27 | 53 | m | 53 | 04 | 52 | 0 | 0 | • | 20 | 50 18 50 35 64 | 20 | 35 | 49 | 3 |
| MAX | 639 126 368 298 430 237 | 26 3 | 68 2 | 98 4 | 30 2 | 37 52 | 7 | 347 560 658 | 260 | 658 | 0 | 101 | 207 356 275 478 226 374 317 315 159 567 | 75 4 | . 87 | 226 3 | 374 3 | 117 3 | 115 | 159 | 267 | 0 | 0 | 0 | 366 | 366 142 339 423 407 174 | 339 | 423 | 401 | 174 |
| MEAN | 187 74 124 123 135 108 | 74 1 | 24 1 | 23 1 | 35 1 | | 4 | 46 | 224 156 | 156 | 0 | 88 175 | | 86 135 | 35 | 89 136 106 88 94 171 | 36 1 | 901 | 88 | 46 | 171 | 0 | 0 | 0 | 162 | 0 162 63 119 133 145 115 | 119 | 133 | 145 | 115 |
| SGD 109 | 29.0 67.9 44.7 109.1 67.0 68.0 6 | .0 | 69 | 6.8 | 4,0 | .7 | | ••3 10] | 1.6 | 59.3 102.6 37.6 45.8 47.6 54.0 34.3 0. 0. 27.9 88.9 37.8 5 101.6 0. 77.1 131.8 66.6 50.6 150.7 0. 68.2 56.4 68.4 | , , | •. ⁶ | ,•1 •1 | •8 131 | | 7.6 66 | , Q | ٠. 5 | , e | 6. 3 | 7.0 | • | · | • | 8.2 | 9.5 5. | 8 4. 9 | 8.9 9.0 | 8.43 | 17.8 |

ZERO IS NOT A MEASURED VALUE. IT INDICATES AN INVALIDATED READING.
MINUS ZERO IS NOT A MEASURED VALUE. IT INDICATES A NON-DPERATING STATION.
NUMENUMBER DE READINGS OBTAINED DURING YEAR
AVG=ARITHMETIC AVERAGE
MEAN-GEOMETRIC MEAN
SCD=STANDARD DEVIATION WITH DIVISOR OF (N-1) NOTE

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TABLE IV. - Continued. 1970 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $_{\mu g/m}^3$) FOR CLEVELAND, OHIO

(b) Nitrogen dioxide

| y X | N MAX 241 | 219 | 177 | -0 231 | 190 276 -0 258 | 256 | 264 | 197 | 254 206 | 265 158 | 1194 | 76 173 -0 227 | 210 | 165 | 250 | 208 | 252 145 | 149 | 171 | 286 | 6 321 6 321 |
|--|------------------|----------|---------------|----------|--------------------|---------------|---------|---------------|------------|---------------|------------|------------------|----------|------------|----------|------------|------------|---------------|------------|------------|-----------------|
| PTC HNR H. S | N C | 70,5 | 100 | 9 | 161 | 200 | 220 | -0- | -0- | 900 | 132 | -0 · | 30 | 170 | , 0, | 20- | įς, | 9 | | i o | -0 -25 206 3 |
| FIR STA | 9 . | ٩ | Ŷ | 9 | P | ٩ | ပု | 0 | ° | 9 | P | 0 | P | P | Ŷ | Ŷ | P | ° | Ŷ | P | Ŷ |
| 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | -0- | 9 | Ö | 9 | ့ပုံ ^{နဲ} | 0 | Ó | ဝ | 9 | 0 | 10 | 30 | 9 | Ŷ | 0 | Ŷ | ٥ ا | ٥ | ٩ | 9 | o i |
| BEN DCT H.S | Ŷ | 0 | Ŷ | Ŷ | Ŷ | 9 | 9 | Ŷ | Ŷ | Ŷ | P | 9 | Ŷ | 9 | Ŷ | P | P | ٥ | Ŷ | Ŷ | 0 |
| LOH FSH F. S | 113 | 214 | 165 | 247 | 152 | 0 | 569 | 200 | 166 | 135 | 66 | 198 | 227 | 136 | 302 | 516 | 116 | 105 | 170 | 262 | 214 |
| CLE CLE | 218 | 223 | 180 | 248 | 249 | 241 | 240 | 230 | 0 | 163 | 16 | 219 | 208 | 172 | 280 | 252 | 169 | 159 | 166 | 276 | 276 |
| PS0 PR0 | Ŷ | ° | ٩ | Ŷ | Ŷ | ٩ | ° | ٩ | ٩ | P | 9 | 0 | Ŷ | Ŷ | Ŷ | ٩ | P | Ŷ | ٩ | Ŷ | Ŷ |
| GRE H•N TER | Ŷ | Ŷ | Ŷ | Ŷ | 9 | 9 | ٩ | Ŷ | Ŷ | 9 | Ŷ | 9 | 9 | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | Ŷ |
| CUY SVN BLD | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ဝ | Ŷ | 9 | 9 | 9 | Ŷ | ٩ | ٩ | ٩ | ٩ | Ŷ | ٩ | ٩ |
| SUP EDU CEN | 9 | Ŷ | Ŷ | 9 | 9 | Ŷ | 0 | ٩ | ٩ | Ŷ | P | 0- | P | Ŷ | 9 | Ŷ | P | 9 | 9 | 9 | 0 |
| ST. JSP H.S | Ŷ | P | Ŷ | Ŷ | Ŷ | Ŷ | 9 | ٩ | Ŷ | P | 9 | 0 | ? | ٩ | Ŷ | Ŷ | Ŷ | ٩ | 9 | ٩ | Ŷ |
| 7.5. 7.8. | ٩ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | ? | Ŷ | P | 9 | 9 | 9 | ٩ | Ŷ | ٩ | ٩ | Ŷ | P | Ŷ | P | ٩ |
| ADN H.S | ٩ | Ŷ | P | ٩ | Ŷ | Ŷ | ٩ | Ŷ | ٩ | ٩ | 9 | 9 | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | ٩ | ٩ | Ŷ | ٩ |
| FIR STA =29 | Ŷ | ٩ | Ŷ | ဂိ | Ŷ | 9 | Ŷ | Ŷ | Ŷ | ဂိ | P | ç | ٩ | Ŷ | Ŷ | Ŷ | P | Ŷ | Ŷ | ٦ | Ŷ |
| AL ELM CRL | ٩ | 9 | 9 | ٩ | Ŷ | Ŷ | ٩ | 9 | ٩ | Ŷ | 9 | 0 | Ŷ | 9 | ٩ | ٩ | ٩ | Ŷ | 9 | Ŷ | ٩ |
| P.L DNB ELE | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | 9 | 9 | P | Ŷ | Ŷ | P | 0 | Ŷ | 0 | Ŷ | 9 | 9 | Ŷ | Ŷ | P | ٩ |
| JFK H.S | 152 | 197 | 101 | 203 | 255 | 225 | • | 185 | 0 | 132 | 103 | 137 | 151 | 66 | 128 | 145 | 98 | 123 | 147 | 568 | 282 |
| YAR | Ŷ | 9 | ٩ | Ŷ | P | ٩ | ٥ | ٩ | Ŷ | ٩ | 9 | 9 | Ŷ | 9 | ٩ | Ŷ | Ŷ | P | ٩ | ٩ | 0 |
| GEO WAS ELE | 278 | 193 | 128 | 219 | 235 | 255 | 258 | 191 | 199 | 145 | 18 | 229 | 195 | 133 | 273 | 198 | 116 | 105 | 171 | 273 | 209 |
| SCR S | ٩ | Ŷ | ٩ | ٩ | Ŷ. | 9 | ٩ | Ŷ | ٩ | Ŷ | 9 | 9 | ę | P | ٩ | Ŷ | Ŷ | ٩ | ٩ | P | ٩ |
| FIR STA #19 | 324 | 278 | 450 | 276 | 270 | 260 | 282 | 254 | 265 | 194 | 113 | 278 | 201 | 226 | 240 | 238 | 233 | 198 | 163 | 333 | 290 |
| FIR STA | 171 | 173 | 192 | 216 | 295 | 292 | 0 | 183 | 0 | 168 | 119 | 281 | 231 | 178 | 247 | 232 | 167 | 145 | 168 | 278 | 245 |
| EST BRK REC | 247 | 267 | 128 | 246 | 262 | 264 | 212 | 172 | 201 | 157 | 121 | 223 | 224 | 162 | 257 | 199 | 147 | 140 | 190 | 310 | 269 |
| S S S S S S S S S S S S S S S S S S S | 243 | 222 | 135 | 234 | 252 | 239 | 216 | 190 | 181 | 166 | 133 | 212 | 236 | 176 | 267 | 208 | 152 | 145 | 173 | 285 | 206 |
| COL #000 H.S | 298 | 161 | 177 | 190 232 | 241 | 284 | 237 21 | 193 | 225 18 | 145 | 151 146 13 | 245 | 220 | 172 | 221 | 191 | 63 156 15 | 145 | 187 170 17 | 277 236 28 | 253 |
| CLE PNE TOO | -0 187 | 179 | -0 171 177 13 | 190 | -0 245 241 | -0 240 284 23 | 0 | -0 190 193 19 | 0 | -0 158 145 16 | 151 | -0 229 245 | 199 | -0 186 172 | 255 | -0 198 191 | | -0 179 145 14 | 187 | | -0 309 253 |
| CLE HLT | | Ŷ | | Ŷ | | | Ŷ | | Ŷ | | P | | Ŷ | | ٩ | | Ŷ | | Ŷ | Ŷ | |
| BKL | 305 | 333 | -0 186 | 260 | -0 288 | 274 | 241 | 226 | 207 | 182 | 131 | 252 | 226 | -0 201 | 569 | -0 200 | -0 195 | 210 | 229 | 307 | 321 |
| ADB | P | 9 | | 0 | | 0 | ٩ | 0 | ٩ | Ŷ | 9 | ç | 0 | | 9 | | | ° | ٩ | ç | 0 |
| AIR Pol Ofc | DATE 1- 2*195 | 1- 6-164 | 1- 8-141 | 1-11+212 | 1-13*258 | 1-17+248 | 1-20* 0 | 1-23+185 | 1-27+ 0 | 1-29+153 | 2- 3-100 | 2- 6*223 | 2-10+203 | 2-12+145 | 2-14-264 | 2-18+229 | 2-20-131 | 2-25+138 | 2-28*119 | 3- 3+273 | 3- 6*245 |

56 287 246 64 310 1 193 140 239 205 378 -0 221 175 257 169 318 -0 207 65 291 -0 156 120 198 -0 256 194 415
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TABLE IV. - Continued. 1970 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $\mu g/m^3$) FOR CLEVELAND, OHIO

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|) Continued. |
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|----------|----------|-----------|--------------|----------|----------|------------|------------------|------------|----------|----------|----------|---------------|----------------|----------|----------|----------|--------|--------|---------|-----------|--------|------------|----------|---------|-----------|--------|-------------|------------|--------------------|
| 9 | Ŷ | o P | 0 | o | P | 9 | P | P | 0 | 0 | 0 | o I | ٥ | 0 | P | 9 | 0 | 0 | 0 | Ŷ | 0 | Ŷ | 0 | Ŷ | 0 | ٥ | 0 | ٩ | 0 |
| 0 | o | 9 | 9 | 0 | 0 | 9 | ° | 9 | o | 0 | 0 | ပ္ | 0 | 0 | Ö | 9 | o | 0 | J- | 9 | 0 | 0 | 0 | Ö | 0 | o | ÿ | o | 0 |
| 9 | 0 | o | 0 | o | o | o | Ŷ | Ŷ | P | o | o | 0 | 0 | o | 9 | Ŷ | 0 | o | o | Ŷ | o | o | ٩ | o | 0 | 9 | P | o | o I |
| 529 | 0 | 302 | 163 | 0 | 101 | 11 | ٩ | Ŷ | ٥ | 0 | 0 | 9 | 0 | 0 | 0 | P | 0 | Ŷ | 0 | o P | 0 | 9 | 0 | 9 | 0 | 9 | 0 | 0- | 0 |
| 340 % | 151 | 212 | 0 | 0 | 0 | 0 | Ŷ | Ŷ | o | 0 | Ŷ | Ŷ | 9 | 9 | o | Ŷ | 0 | o | Ŷ | Ŷ | 0 | Ŷ | o | 9 | 0 | Ŷ | o | Ŷ | 0 |
| P | o o | 9 | Ŷ | 0 | Ŷ | 9 | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | 0 | Ŷ | ٩ | Ŷ | ٩ | ٩ | ° | o | Ŷ | Ŷ | Ŷ | Ŷ | 9 | 0 | o | Ŷ | 0 | Ŷ |
| Ŷ | ٥ | Ŷ | 0 | 9 | P | Ŷ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | 9 | 9 | 9 | ° | Ŷ | ٥ | P | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | 0 | Ŷ | o | Ŷ | Ŷ |
| Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | P | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | 9 | Ŷ | Ŷ | ဝ | 9 | P | Ŷ | ဝှ | 9 | ٩ | ò | 9 | P | Ŷ | 9 | Ŷ | Ŷ |
| 0 | ٩ | 9 | 9 | 9 | ٩ | Ŷ | P | Ŷ | ٩ | ٥ | ٩ | 0 | ٩ | 9 | ٥ | 9 | 0 | o | ٩ | 0 | 9 | 0 | ٩ | 9 | 0 | 9 | ° | Ŷ | ° |
| Ŷ | Ŷ | P | ٩ | Ŷ | P | ٩ | Ŷ | P | ٩ | 9 | Ŷ | 9 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | 0 |
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| Ŷ | ٩ | Ŷ | Ŷ | ٩ | Ŷ | ٩ | ٩ | ٩ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | 9 | Ŷ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ |
| Ŷ | ٩ | ? | Ŷ | ? | Ŷ | ٩ | ٩ | ٩ | 9 | ٩ | P | ٩ | 9 | Ŷ | 9 | 9 | 7 | 9 | P | 9 | 9 | ٩ | P | î | Ŷ | ဂ | Ŷ | ٩ | Ŷ |
| 0 | 9 | Ŷ | ٩ | 9 | Ŷ | Ŷ | 9 | ٩ | 9 | ٩ | 9 | ٩ | ٩ | ٩ | Ŷ | ٩ | 0 | 9 | 0 | Ŷ | 9 | Ŷ | 9 | 0 | 9 | ٩ | P | P | Ŷ |
| 9 | ٩ | ٩ | ٩ | Ŷ | ٩ | Ŷ | Ŷ | ? | Ŷ | ٩ | Ŷ | ٩ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | 0 | 262 | 234 | 130 | 163 | 430 | 177 | 0 | 325 | 155 | 292 | 149 |
| 216 | 0 | 147 | 135 | 0 | 139 | 0 | 198 | 109 | 151 | 198 | 0 | 136 | 0 | 181 | 310 | 239 | 150 | 0 | 224 | 160 | 260 | 227 | 172 | 153 | 0 | 301 | 0 | 147 | 160 |
| Ŷ | Ŷ | Ŷ | Ŷ | P | Ŷ | Ŷ | | 0 | 0 | • | • | 0 | • | 0 | 0 | 0 | 158 | 0 | 313 | 155 | 324 | 260 | 233 | 191 | 0 | 298 | 152 | 288 | 186 |
| 202 | 226 | 185 | 103 | ٥. | 156 | 113 | 314 | 103 | 277 | 237 | • | 128 | 240 | 275 | 233 | 261 | 214 | - | 323 | 221 | 406 | 276 | 385 | 155 | • | 289 | 168 | 303 | 171 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | ٩ | ٩ | 9 | 9 | 9 | ٩ | 9 | 9 | ٩ | Ŷ | 9 | 9 | 9 | ٩ | 9 | ? | ٩ | 9 | 9 | ? | 9 | 9 |
| 5 283 | 0 203 | 5 238 | 179 | 3 335 | 3 208 | 8 193 | 9 356 | 1 167 | 7 364 | 7 327 | 5 353 | 8 203 | 2 214 | 4 343 | 9 322 | 3 361 | 5 281 | 6 265 | 0 | 0 216 | 9 251 | 3 322 | 0 374 | 0 179 | 171 (| 7 366 | 8 208 | 361 | 7 290 |
| 32 | 11 | 21 | 3 181 | 25 | 3 15 | 5 19 | 39 | 6 221 | 7 29 | 5 287 | 9 32 | 13 | 18 | 28 | 8 289 | 0 103 | 30 | 3 29(| 4 311 | 22 | 33 | 0 35 | • | 8 200 | 4 190 | 11 | 52 | 9 280 | 0 27 |
| 2 302 | 8 177 | 151 0 | 5 143 | 2 204 | 21 | 1 18 | 0 276 | 12 | 9 22 | 1 22 | 8 24 | 2 149 | 5 127 | 7 330 | 3 28 | . 27 | 1 192 | 3 20 | 1 314 | 0 61 | 0 242 | | 5 27 | 20 | 21 | 2 365 | 5 141 | 0 22 | m |
| 7 27 | 0 23 | 26 199 19 | 2 145 | 0 19 | 3 18(| 4 20 | 9 28(| 5 105 | 0 218 18 | 9 46 | 0 32 | 8 19. | 3 18 | 1: 247 | 2 336 | 1 297 | 1 21 | 0 23 | 7 54 | 2 20(| 9 | • | 0 210 28 | 1 178 | 0 169 | 8 272 | 2 13 | 6 | 2 15 |
| 250 307 | 0 | 619 | 7 132 | | 157 133 | 3 23 | 0 22 | 5 11 | 0 21 | 0 239 | | 0 14 | 0 15 | 368 281 | 4 292 | 250 301 | 8 231 | | 317 267 | 4 15 | 966 1 | 1 28 | 0 21 | 208 201 | | 1 358 | 2 11 | 5 239 | 1 16 |
| -0 25 | o P | -0 - | -0 157 | -0 222 | -0 15 | -0 233 234 | -0 260 229 | -0 135 115 | P | ٥ | -0 224 | -0 170 148 19 | -0 160 153 185 | -0 36 | -0 274 | -0 25 | -0 218 | 61 262 | 76 31 | 0 174 152 | 0 317 | 64 311 286 | 0 | 97 20 | 961 0 | 0 341 | 133 102 112 | 8 245 | 8 21 |
| | | | | | | | | | | | | | | | | | | | | | | | 83 | | | | | -0 193 188 | -0 191 228 211 162 |
| -0 283 | -0 148 | -0 195 | -0 175 | -0 218 | -0 216 | -0 188 | -0 108 | -0 133 | -0 219 | -0 237 | -0 267 | -0 150 | -0 163 | -0 259 | -0 296 | -0 248 | -0 220 | -0 224 | -0 248 | -0 169 | -0 279 | -0 298 | 8 0- | -0 202 | -0 231 | -0 315 | -0 156 | -0 15 | -0 15 |
| | | | | | | | | | | | | | | | | | • | 0 | 0 | | 0 | | 0 | • | | • | 0 | | 0 |
| 6-12+349 | 6-14-216 | 6-16*181 | 6-19-154 | 6-22-242 | 6-25+205 | 6-28+202 | 7- 1+311 | 7- 4-135 | 7- 7+241 | 7-10+298 | 7-13-441 | 7-16+214 | 7-19*249 | 7-22+341 | 7-25+270 | 7-28-332 | 7-31. | 8- 3• | 8- 6* | 8 · 6 | 8-12* | 8-15* | 8-18* | 8-21* | 8-24* | 8-27* | 8-30 | 9- 2* | 9. 5. |

TABLE IV. - Continued. 1970 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $\mu g/m^3$) FOR CLEVELAND, OHIO

| (b) Concluded. Nitrogen dioxide | 75 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 | 129 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 | 236 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 | 164 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 | 174 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 | - 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- | - 3- 3- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0 | 39 0 0 0 0 0 0 0 0 0 25 50 0 0 0 0 | . 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 | 434 0 0 0 0 0 0 0 0 0 399 250 0 0 0 0 | 189 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 88.8 0. 0. 0. 0. 0. 472.4 0. 0. 0. |
|---------------------------------|---|--|--|--|--|--|--|------------------------------------|---|---|---------------------------------------|---------------------------------------|------------------------------------|
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| | | | | | | | | 0 | 0 | 0 | 0 | • | |
| ø) | | | | | | | | 0 | 0 | 0 | 0 | 0 | |
| oxido | | | ç | ٥ | | ٻ . | 9 | 0 | 0 | 0 | • | ۰ | |
| en di | | | | | | | | ٥ | ٥ | 0 | • | ٥ | |
| itrog | | | | | | | | 0 | 0 | 0 | 0 | 0 | |
| z ~i | | | | | | | | 39 | 80 | 4 | 34 | 68 | |
| ă | | | | | | | | | | | 4 | - | . 8 |
| pa | 6 | 7 | ŭ | 38 | 2 | 2 | χ. | 8 | 22 | 8 | 2 | 5 | ٠, |
| Conclud | 2 139 | 141 | 0 143 | 0 138 | 0 165 | 176 | 20 195 | 96 | 20 175 | 86 01 | 316 | 98 169 | 48.6 |
| (b) Conclud | 0 112 139 | 4 204 141 | 0 | 0 | • | 201 | 0 220 195 | 41 | 220 | 110 | 6 415 316 | 4 208 169 189 | 5.1 |
| (b) Conclud | 0 120 112 139 | | 168 0 | 148 0 | 267 0 | 0 201 | 0 220 | 104 41 | 205 220 | 76 110 | 406 415 | 194 | |
| (b) Conclud | -0 120 112 | -0 164 | -0 188 0 | -0 148 0 | -0 267 0 | -0 0 201 | -0 0 250 | 0 104 41 | 0 205 220 | 0 76 110 | 0 406 415 | 0 194 | 66.9 |
| (b) Conclud | 135 -0 120 112 | 208 -0 164 | 255 -0 188 0 | 170 -0 148 0 | 247 -0 267 0 | 176 -0 0 201 | 275 -0 0 220 | 113 0 104 41 | 255 0 205 220 | 94 0 76 110 | 443 0 406 415 | 244 0 194 | 73.5 66.9 0. 75.1 |
| (b) Conclud | 141 135 -0 120 112 | 157 208 -0 164 | 213 255 -0 188 0 | 205 170 -0 148 0 | 187 247 -0 267 0 | 165 176 -0 0 201 | 0 275 -0 0 250 | 113 0 104 41 | 237 255 0 205 220 | 103 94 0 76 110 | 399 443 0 406 415 | 227 244 0 194 | 73.5 66.9 67.1 0. 75.1 |
| (b) Conclud | 198 141 135 -0 120 112 | 146 157 208 -0 164 | 193 213 255 -0 188 0 | 160 205 170 -0 148 0 | 211 187 247 -0 267 0 | 176 165 176 -0 0 201 | 202 0 275 -0 0 220 | 114 111 113 0 104 41 | 213 237 255 0 205 220 | 61 103 94 0 76 110 | 443 0 406 415 | 203 227 244 0 194 | 64.0 73.5 66.9 67.1 0. 75.1 |
| (b) Conclud | 0 198 141 135 -0 120 112 | 0 146 157 208 -0 164 | 3 193 213 255 -0 188 0 | 160 205 170 -0 148 0 | 9 211 187 247 -0 267 0 | 176 165 176 -0 0 201 | 14 202 0 275 -0 0 220 | 4 114 111 113 0 104 41 | 4 213 237 255 0 205 220 | 61 103 94 0 76 110 | 1 371 399 443 0 406 415 | 5 203 227 244 0 194 | 64.0 73.5 66.9 5 67.1 0. 75.1 |
| (b) Conclud | 0 198 141 135 -0 120 112 | 0 146 157 208 -0 164 | 3 193 213 255 -0 188 0 | 160 205 170 -0 148 0 | 9 211 187 247 -0 267 0 | 176 165 176 -0 0 201 | 0 294 202 0 275 -0 0 220 | 4 114 111 113 0 104 41 | 4 213 237 255 0 205 220 | 61 103 94 0 76 110 | 1 371 399 443 0 406 415 | 5 203 227 244 0 194 | 64.0 73.5 66.9 5 67.1 0. 75.1 |
| (b) Conclud | 0 198 141 135 -0 120 112 | 0 146 157 208 -0 164 | 3 193 213 255 -0 188 0 | 160 205 170 -0 148 0 | 9 211 187 247 -0 267 0 | 176 165 176 -0 0 201 | 0 294 202 0 275 -0 0 220 | 4 114 111 113 0 104 41 | 4 213 237 255 0 205 220 | 61 103 94 0 76 110 | 1 371 399 443 0 406 415 | 5 203 227 244 0 194 | 64.0 73.5 66.9 5 67.1 0. 75.1 |
| (b) Conclud | 198 141 135 -0 120 112 | 146 157 208 -0 164 | 0 198 179 243 193 213 255 -0 188 0 | 160 205 170 -0 148 0 | 9 211 187 247 -0 267 0 | 176 165 176 -0 0 201 | 0 175 0 294 202 0 275 -0 0 220 | 4 114 111 113 0 104 41 | 4 213 237 255 0 205 220 | 61 103 94 0 76 110 | 1 371 399 443 0 406 415 | 5 203 227 244 0 194 | 64.0 73.5 66.9 5 67.1 0. 75.1 |
| (b) Conclud | 0 196 283 190 198 141 135 -0 120 112 | 0 154 133 260 146 157 208 -0 164 | 0 198 179 243 193 213 255 -0 188 0 | 160 205 170 -0 148 0 | 9 211 187 247 -0 267 0 | 176 165 176 -0 0 201 | 0 175 0 294 202 0 275 -0 0 220 | 4 114 111 113 0 104 41 | 4 213 237 255 0 205 220 | 61 103 94 0 76 110 | 1 371 399 443 0 406 415 | 5 203 227 244 0 194 | 64.0 73.5 66.9 5 67.1 0. 75.1 |
| (b) Conclud | 0 196 283 190 198 141 135 -0 120 112 | 0 154 133 260 146 157 208 -0 164 | 0 198 179 243 193 213 255 -0 188 0 | 160 205 170 -0 148 0 | 9 211 187 247 -0 267 0 | 176 165 176 -0 0 201 | 0 175 0 294 202 0 275 -0 0 220 | 4 114 111 113 0 104 41 | 4 213 237 255 0 205 220 | 61 103 94 0 76 110 | 1 371 399 443 0 406 415 | 5 203 227 244 0 194 | 64.0 73.5 66.9 5 67.1 0. 75.1 |
| (b) Conclud | 0 198 141 135 -0 120 112 | 0 146 157 208 -0 164 | 3 193 213 255 -0 188 0 | 205 170 -0 148 0 | 211 187 247 -0 267 0 | 165 176 -0 0 201 | 0 294 202 0 275 -0 0 220 | 114 111 113 0 104 41 | 213 237 255 0 205 220 | 103 94 0 76 110 | 399 443 0 406 415 | 203 227 244 0 194 | 64.0 73.5 66.9 67.1 0. 75.1 |

ZERD IS NOT A MEASURED VALUE. IT INDICATES AN INVALIDATED READING.
MINUS ZERO IS NOT A MEASURED VALUE. IT INDICATES A NON-OPERATING STATION.
NUM=NUMBER OF READINGS OBTAINED DURING YEAR
AVG=ARTHHMETIC AVERAGE
MEAN=GEOMETRIC MEAN
SGO=STANDARD DEVIATION MITH DIVISOR OF (N-1) NOTE

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TABLE IV. - Continued. 1970 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $_{\mu g/m}^3$) FOR CLEVELAND, OHIO

(c) Sulfur dioxide

| | N MAX 119 | | | ~ | _ | _ | ~ | ۷Q. | | | | , oi oi o | | 63 63 63 | ~ | | | 1 361 52 | | | 5 196 123 0 209 |
|---|--------------|------------|------------|----------------|----------------|-----------------|--------------|------------|------------------|----------|-------|-----------|----------|----------------|----------|------------|----------|-------------|----------|------------|-----------------------|
| PTC HNR H.S | | 70 | -0- | * o | , b | [®] ဝှ | 8 0 9 | | , ⁶ , | 9 | . o. | ٩, | | ٥, | ٠ ٩ | ۰,۰ | 9 | | | ۱, | , 6 4 |
| FIR STA =35 | 0 | ٩ | Ŷ | P | Ŷ | ٩ | 9 | Ŷ | Ŷ | Ŷ | Ŷ | P | P | Ŷ | P | Ŷ | P | Ŷ | ပို | Ŷ | ° |
| EFE CO | 0 | Ö | 0 | 3 | 0 | 0 | 0 | ٩ | 0 | 0 | Ō | 0 | Ŷ | Đ | 0 | Ŷ | 0 | P | õ | ٩ | ° |
| BEN DCT H.S | 0 | Ŷ | 0 | 9 | Ŷ | 9 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | P | Ŷ | 9 | Ŷ | ٩ | Ŷ | Ŷ |
| JOH PSH F. S | 97 | 7.8 | 9 | 154 | 120 | 0 | 110 | 78 | 71 | 37 | 24 | 39 | 95 | 20 | 123 | 50 | 39 | 29 | 118 | 136 | 52 |
| CLE | 157 | 105 | 118 | 183 | 246 | 157 | 191 | 160 | 0 | 71 | 65 | 118 | 20 | 66 | 178 | 136 | 71 | 101 | 199 | 196 | 209 |
| PS0 PR0 | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | 0 | Ŷ | Ŷ | 9 | Ŷ | 9 | ٩ | ٩ | Ŷ | ٩ | Ŷ | Ŷ | ٩ | ٩ | ٩ |
| GRE TER | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | 9 | ٩ | P | Ŷ | ٩ | Ŷ | P |
| SVN BLD | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | 9 | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | Ŷ | Ŷ |
| SUP EDU CEN | Ŷ | Ŷ | P | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | Ŷ | ٩ | ٩ | ٩ | Ŷ | ٩ | Ŷ | ٩ | Ŷ | Ŷ |
| ST. JSP H.S | P | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | P | ٩ | Ŷ | ٩ | ٩ | ٩ | P | P |
| J.F RHD H.S | 9 | Ŷ | Ŷ | Ŷ | Ŷ | P | Ŷ | ٩ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | ٩ | ٩ | ٩ | ٩ | ٩ | Ŷ | Ŷ | 9 |
| ADM ADM H.S | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | Ŷ | ٩ | ٩ | 9 | ٩ | ٩ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ |
| FIR STA =29 | Ŷ | Ŷ | , P | 9 | ٩ | 9 | 9 | Ŷ | Ŷ | 9 | Ŷ | Ŷ | ٩ | Ŷ | ٩ | ٩ | 9 | 9 | Ŷ | P | Ŷ |
| A B B B B B B B B B B B B B B B B B B B | ٩ | Ŷ | ٩ | 9 | 9 | ? | 9 | Ŷ | ٩ | Ŷ | ٩ | ٩ | 9 | Ŷ | ٩ | ٩ | ٩ | 9 | 9 | ٩ | Ŷ |
| P.L DNB ELE | Ŷ | Ŷ | Ŷ | P | 9 | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | 9 | Ŷ | ٩ | Ŷ | P | Ŷ | Ŷ | Ŷ | Ŷ |
| A.S. | 89 | 83 | 34 | 160 | 162 | 126 | 0 | 126 | 0 | 84 | 63 | 18 | 7 | 18 | 26 | 5 6 | 21 | 63 | 123 | 157 | 167 |
| HRV | ٩ | ٩ | Ŷ | Ŷ | ٩ | ٩ | ٩ | ٩ | Ŷ | Ŷ | ٩ | Ŷ | ٩ | Ŷ | Ŷ | 9 | ٩ | ٩ | Ŷ | Ŷ | 0 |
| GEO WAS ELE | 110 | 78 | 20 | 186 | 86 | 86 | 102 | 97 | 16 | 41 | 34 | 94 | ٥ | 9 | 128 | 92 | 41 | 24 | 131 | 118 | 40 |
| SCR V | 0 | ٩ | Ŷ | ٩ | ٩ | ٩ | Ŷ | ° | Ŷ | ٩ | ٩ | ٩ | ٩ | 0 | ٩ | P | Ŷ | ٩ | ٩ | Ŷ | ٩ . |
| FIR STA =19 | 160 | 92 | 275 | 230 | 181 | 66 | 254 | 157 | 160 | 8. | 612 | 233 | 196 | 0 | 133 | 191 | 361 | 16 | 48 | 170 | 110 |
| FIR STA =13 | 21 | 52 | 133 | 96 | 217 | 133 | 0 | 4 | 0 | 126 | 37 | 73 | 86 | 9 | 9 | 128 | 173 | 81 | 133 | 55 | 188 |
| EST BRK REC | 86 | 65 | 34 | 139 | 110 | 81 | 81 | 52 | 18 | 31 | 16 | 34 | 52 | 41 | 131 | 56 | 34 | 54 | 126 | 126 | 45 |
| 95 A B | 46 | 76 | 20 | 149 | 143 | 80 | 96 | 94 | 75 | 54 | 56 | 59 | 67 | 4 | 157 | 49 | 31 | 25 | 120 | 152 | 41 |
| COL W000 | 212 167 | 105 | 60 112 | 167 | 277 | 159 | 0 272 | 120 | 0 123 | 76 | 34 | 78 | 65 | 89 120 | 110 112 | 94 | 183 | 40 | 28 | 128 | 139 |
| CLE CLE COL HLT PNE WOO HAS | 212 | -0 181 105 | | -0 136 167 149 | -0 170 277 143 | -0 162 | | -0 126 120 | | 84 | 89 | 66 | 16 | | 110 | 8 | 31 | 81 | 157 | -0 107 128 | -0 199 139 |
| CLE HLT MUS | ٩ | | Ŷ | | | | ٩ | | Ŷ | Ŷ | ٩ | Ŷ | ٩ | Ŷ | ٩ | ٩ | ٩ | Ŷ | Ŷ | | |
| BKL | -0 105 | 78 | 65 | 207 | -0 157 | 8 | -0 .105 | 16 | 37 | 34 | 37 | 123 | 20 | 55 | 217 | 58 | 4 | 18 | 139 | -0 141 | -0 105 |
| AIR ADB POL JAS OFC | | ٩ | ٩ | 9 | | Ŷ | | ٩ | ? | 9 | P | ° | P | P | P | P | ٩ | P | 0 | | |
| AIR POL OFC | E 2•132 | 1- 6* 76 | 96 *8 | 1-11-289 | 1-13+153 | 1-17*105 | • | 1-23+123 | | 1-29* 77 | * 94 | 2- 6*340 | 2-10* 88 | 53 | 2-14+165 | 2-14+203 | 2-20* 48 | 2-25+ 46 | 2-28+149 | 3+157 | 3- 6+187 |
| | DATE 1- 2 | 1- 6 | 7 | 11-11 | 1-13 | 1-17 | 1-20+ | 1-23 | 1-27* | 1-29 | 2- 3• | 5- 6 | 2-10 | 2-12• | 2-14 | 2-18 | 2-20 | 2-25 | 2-28 | 3- 3 | 3-6 |

TABLE IV. - Continued. 1970 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $_{\mu g/m}^3$) FOR CLEVELAND, OHIO

(c) Continued. Sulfur dioxide

| 110 | 666 | 35 | 2 | J -0 - | 40. | 4 0 . | 666 | 4 O 4 | | 4 (7) | σ. | 4 - 6 | ., ., . | 767 | , w . | 7 2 2 | 777 | 12- | 4 0 - | 4.4 | 46 | . 0 - | 11. | | 290 | 101 | 752 | 4 L | 326 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---|----------|----------|----------|-------|-------|----------|--------|--------|-------|------|--------|------|--------|------|--------|-----------------|
| ٩. | ٠ ١ | ခိုင္ခ | - | ۰ ٫ | , 6 | ٠, | 70' | 9 | , ٥ | 9 | ٩٥ | ် ရ | ָ ֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֖֓֞ | , , | o ' | , | 9 | ٠, | 1 | ٠ أ | ا م | ٠, | ိုဝု | ٠ ٩ | ြို | ٠ ٩ | 9 | -0- | , o . |
| 0 | Ŷ | Ŷ | P | Ŷ | Ŷ | 0 | 9 | ° | Ŷ | Ö | Ŷ | 9 | Ŷ | 0 | ٩ | 0 | ٩ | 0 | 9 | Ŷ | Ŷ | 0 | Ŷ | ပ | Ŷ | 9 | Ŷ | o i | 9 |
| 0 | 0 | 9 | Ŷ | 0 | 9 | Ŷ | 0 | ٩ | Ÿ | ٩ | Ŷ | 9 | ° | 0 | 0 | Ŷ | 0 | Ŷ | 0 | 9 | 0 | ° | Ŷ | 0 | 9 | J- | 9 | 0 | 0 |
| Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | ٥ | Ŷ | ٩ | Ŷ | Ŷ | ٥ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | o · | Ŷ | ٥ | Ŷ | Ŷ | Ŷ | 9 | Ŷ | Ŷ |
| 18 | • | 22 | 25 | O | 24 | 82 | Ŷ | 0 | 0 | P | Ŷ | Ŷ | Ŷ | 0 | Ŷ | 9 | Ŷ | Ŷ | 0 | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | 9 | Ŷ | Ŷ | Ŷ | 0 |
| 212 | 69 | 54 | ٥ | 0 | 0 | 0 | 9 | 9 | 9 | 0 | 0 | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | P | 9 | Ŷ | Ŷ | 9 | Ŷ | P | 0 | Ŷ | Ŷ | Ŷ | Ŷ |
| 9 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | P | 9 | ° | 9 | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | ° | Ŷ | ° | Ŷ | ô | Ŷ | Ŷ | Ŷ | ° | Ŷ | ° | Ŷ | ° | Ŷ | 0 |
| ٩ | Ŷ | Ŷ | Ŷ | Ŷ | P | ٩ | ٩ | P | 9 | ٩ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | 9 | Ŷ | Ŷ | Ŷ | P | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | 0 |
| Ŷ | ٩ | Ŷ | Ŷ | ٩ | ٩ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | 0 | ٩ | 9 | Ŷ | ۹. | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | ٩ | Ŷ | o o |
| 0 | ٩ | Ŷ | Ŷ | ٩ | 0 | Ŷ | 0 | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ° | Ŷ | Ŷ | 9 | ٩ | Ŷ | 0- | Ŷ | Ŷ | 9 | ٩ | Ŷ | 9 | Ŷ | Ŷ | Ŷ | 0 |
| 9 | Ŷ | 9 | P | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | 9 | Ŷ | 9 | Ŷ | P | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | 9 | ٩ | Ŷ | Ŷ | 9 | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ |
| P | ٩ | Ŷ | P | Ŷ | ٩ | Ŷ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | ? | P | 9 | 9 | 9 | Ŷ | ٩ | P | Ŷ | Ŷ | ٩ | ٩ | 0 |
| Ŷ | Ŷ | 9 | P | Ŷ | ٩ | Ŷ | ٩ | ٩ | ٩ | ٩ | ٩ | ٩ | ٩ | 9 | Ŷ | Ŷ | Ŷ | 9 | Ŷ | 9 | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | 0 | Ŷ |
| ç | 9 | Ŷ | P | Ŷ | ٩ | P | Ŷ | Ŷ | ٩ | P | P | 9 | ٩ | ٩ | Ŷ | Ŷ | ç | P | P | Ŷ | Ŷ | ٩ | 9 | Ŷ | ဂ | Ŷ | 우 | P | 9 |
| ٩ | ٩ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | Ŷ | Ŷ | 9 | Ŷ | Ŷ | Ŷ | ? | Ŷ | ٩ | Ŷ | Ŷ | ٩ | Ŷ | ٩ | Ŷ | ° |
| Ŷ | Ŷ | P | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | 9 | ٩ | ٩ | 0 | • | 21 | 0 | 10 | 72 | 23 | 0 | 7 | 16 | 142 | 0 |
| 82 | 0 | 19 | 21 | 0 | 27 | 20 | 38 | 19 | 70 | 19 | 0 | 29 | 41 | 29 | 74 | 33 | 34 | 0 | 67 | 41 | 62 | 63 | 48 | S | 0 | 141 | 4 | 49 | 30 |
| ٩ | Ŷ | ٩ | ٩ | P | Ŷ | P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 265 | 0 | 119 | 49 | 158 | 79 | 65 | 69 | 0 | 341 | 260 | 118 | 326 |
| 56 | 62 | 24 | 39 | 0 | 47 | 0, | 90 | 24 | 53 | 37 | 0 | 32 | 41 | 54 | 89 | 35 | 18 | 0 | 48 | 45 | 11 | 61 | 85 | 30 | 0 | 4. | 36 | 84 | 24 |
| ٩ | Ŷ | Ŷ | P | P | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | ٩ | ° | Ŷ | ٩ | ٩ | 0 | 0 | ٩ | Ŷ | 9 | ٩ | ٩ | Ŷ | ٩ | ° |
| 110 | 20 | 9 | 362 | 131 | 176 | 83 | 109 | 306 | 138 | 85 | 101 | 341 | 68 | 44 | 117 | 112 | 11 | 4 | 0 | 70 | 69 | 122 | 92 | 64 | 19 | 104 | 65 | 129 | 57 |
| 148 | 41 | • | 119 | 106 | 41 | 117 | 165 | 160 | 106 | 36 | 83 | 140 | 37 | 69 | 117 | • | 101 | 102 | 139 | 40 | 242 | 9 | 0 | 30 | 39 | 70 | 159 | 18 | 96 |
| 102 | 63 | 15 | 7 | 53 | 188 | 56 | 46 | 13 | 31 | 23 | 75 | 21 | 27 | 106 | 55 | 44 | 31 | 56 | 45 | 0 | 31 | 0 | 83 | 75 | 19 | 80 | 31 | 67 | 0 |
| 72 | 49 | 16 | 7 | 4 | 81 | 43 | 4 | 22 | 37 | 61 | 79 | 20 | 34 | 49 | 45 | 35 | 36 | 23 | 52 | 52 | 0 | 0 | 80 | 26 | 27 | 27 | 31 | 0 | 21 |
| 101 | 0 | 35 | £3 | 0 | 99 | 16 | 209 | 99 | 109 | 62 | 0 | 54 | 46 | 11 | 91 | 101 | 66 | 0 | 41 | 39 | 45 | 82 | 55 | 14 | 0 | 110 | 98 | 37 | 67 |
| 107 | 0 | 52 | 39 | 69 | 20 | 74 | -0 134 | 53 | 0 | 0 | 83 | 76 | 45 | 76 | 105 | 99 | 11 | 55 | 108 | 26 | 206 | 0 | 0 | 99 | 52 | 220 | 68 | 71 | 56 |
| ٩ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | 13 | • | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 50 | 51 | 41 |
| 70 | 16 | 9 | 0 | 31 | -0 149 | 20 | 50 | r | 45 | 17 | 69 | 24 | 29 | 4. | 61 | 19 | 35 | 25 | 62 | 43 | 24 | 31 | 75 | 100 | 20 | 43 | 14 | 44 | 0 |
| 9 | Ŷ | 9 | ٩ | ç | î | o- | 0- | P | Ŷ | ç | Ŷ | P | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | ٩ | ٩ | Ŷ | o I | ٩ | Ŷ | 0 | ٩ | ٩ | 0 | 0 | ° |
| 236 | 162 | 4 | 4 | 57 | 184 | 120 | 109 | 53 | 116 | 49 | 180 | 4. | 132 | 219 | 95 | 41 | • | | • | • | • | 0 | • | • | • | • | • | • | • |
| 6-12•236 | 6-14-162 | 6-16+ 94 | 6-19* 46 | 6-22+ 57 | 6-25*184 | 6-28+120 | 7- 1•109 | 7- 4+ 29 | 7- 7-116 | 7-10+ 49 | 7-13-180 | 7-16+ 45 | 7-19+132 | 7-22+219 | 7-25+ 92 | 7-28 | 7-31* | 8- 3• | 8- 6 | 8- 9 | 8-12* | 8-15* | 8-18 | 8-21* | 8-24 | 8-27* | 8-30 | 9- 2* | 8 -6 |

TABLE IV. - Concluded. 1970 24-HOUR-SAMPLING AIR-POLLUTION DATA (IN $_{\mu g/m}^3$) FOR CLEVELAND, OHIO

| | -0 65 | | | -0 87 | -0 93 | -0 114 | -0 129 84 199 | 0 | 0 | 0 | 0 | 0 | |
|----------------|-------------|-------------|------------------|----------------------------|-----------------------------|--------------------------|------------------|---------------|-----------------|--------|---------------------------|-------------------|------------------------------------|
| | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | • |
| | · • | , o | 9 | ' ပု | P | , 5- | '. P | 0 | 0 | 0 | J | 0 | ċ |
| | o | ٠ ٩ | · • | , P | · 0 | ٠ ٩ | o | 0 | • | 0 | 0 | 0 | 8 |
| | ٠ ٥ | 9 | P | ပု | · • | P | , P | 20 | 19 | 89 | 171 | 89 | ٠ د |
| | 9 | Ŷ | ° ° | o o | · P | · 9 | P | 25 | 115 | 18 | 246 1 | | 41.5 |
| | 9 | Ŷ | P | Ŷ | 0 | P | 9 | 0 | 0 1 | 0 | 0 | 0 100 | 55.9 |
| | P | 0 | 9 | ٥ | P | 9 | o o | 0 | 0 | 0 | 0 | 0 | ; |
| | Ŷ | Ŷ | P | o | o | o | o i | 0 | 0 | 0 | 0 | 0 | • |
| | o I | P | 9 | 9 | 0 | Ŷ | 0 | 0 | • | ٥ | 0 | 0 | • |
| | Ŷ | Ŷ | P | Ŷ | P | Ŷ | 0 | 0 | • | • | 0 | 0 | ; |
| | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | P | 0 | 0 | 0 | 0 | 0 | • |
| xide | Ŷ | Ŷ | Ŷ | Ŷ | ٩ | Ŷ | Ŷ | 0 | 0 | 0 | • | 0 | • |
| Sulfur dioxide | Ŷ | ٩ | Ŷ | ٩ | Ŷ | ဂု | Ŷ | 0 | 0 | c | ٥ | 0 | • |
| Sulfu | ٩ | Ŷ | 9 | ٩ | P | 9 | o | 0 | 0 | • | .0 | 0 | • |
| led. | 35 | 37 | 173 | 57 | 117 | 0 | 0 | 35 | 29 | • | 221 | * | 63.0 |
| (c) Concluded. | 46 | 41 | 94 | 13 | 86 | 84 | 8 | 98 | 58 | rv | | 46 | 37.9 |
| ၀) (၁ | 66 | 460 | 163 | 0 | 164 | 146 | 114 | 45 | 157 | 49 | 186 460 167 | 50 135 | 91.2 |
| ٠ | 52 | 33 | 88 | 67 | 78 | 0 | 0 | 103 | 9 | 11 | 186 | 20 | 36.6 |
| | Ŷ | ° | ٩ | 9 | P | Ŷ | Ŷ | 0 | 0 | 0 | 0 | 0 | ċ |
| | 87 | 89 | 102 | 162 | 105 | 278 | 127 | 113 | 123 | 16 | 612 | 103 | 85.3 |
| | 58 | 157 | 54 | 205 | 90 | 136 | 0 | 108 | 100 | ī | 242 | 85 | 53.2 |
| | 49 | 22 | 86 | 32 | 46 | 48 | 171 | 113 | 99 | ~ | 309 | 4 | 56.4 |
| | 36 | 20 | 66 | 62 | 8 | 78 | 661 0 | 104 | 63 | 7 | 210 | 51 | 3 |
| | 147 | 86 | 99 | 102 | 111 | 0 | | 97 | 83 | == | 277 | 76 | 49.7 |
| | 0 50 147 | 0 72 | 81 | 61 | 15 | 147 | 0 86 | 27 107 97 104 | 96 | 5 7 11 | 273 | 82 | 52.9 |
| | | | • | 113 | 140 | | | | . 97 | in | 300 | 77 | 61.3 |
| | 83 | . 29 | 78 | 4 | 45 | 9 | 178 | 9 113 | 116 83 74 97 96 | 4 | 12 772 873 300 273 277 21 | 96 78 53 77 82 76 | 28.4 61.3 49.7 71.3 64.7 52.9 4 |
| | 25 | 23 | 8 | 7 | 104 | 132 | | 82 9 | 89 | . 51 | 134 | 18 | 28.4 |
| | 12-10+ 0 52 | 12-13+ 0 51 | 12-16* 0 80 78 0 | 12-19* 80 74 48 113 61 102 | ;• 6¢ | 3* 56 | 1.11 | 8 | 116 | 21 | 340 | 8 | |
| | 12-1(| 15-1 | 12-1 | 12-1 | 12-22* 66 104 42 140 75 111 | 12-28* 56 132 65 0 147 0 | 12-31+111 96 178 | Z S | AVG | Z | MAX | MEAN | 098 |

ZERO IS NOT A MEASURED VALUE. IT INDICATES AN INVALIDATED READING.
MINUS ZERO IS NOT A MEASURED VALUE. IT INDICATES A NON-OPERATING STATION.
NUM=NUMBER OF READINGS OBTAINED DURING YEAR
AVG=ARITHMETIC AVERAGE
MEAN=GEOMETRIC MEAN
SGD=STANDARD DEVIATION WITH DIVISOR OF (N-1) NOTE

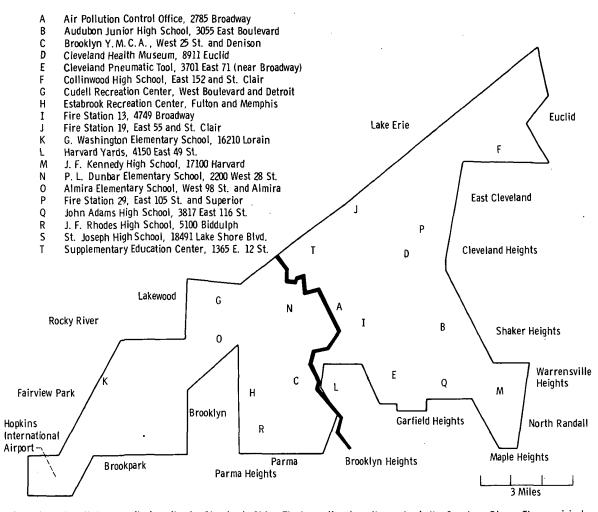


Figure 1. - Air pollution monitoring sites for Cleveland, Ohio. The heavy line down the center is the Cuyahoga River. The municipal boundaries have been straightened somewhat but are accurate in their essential features.

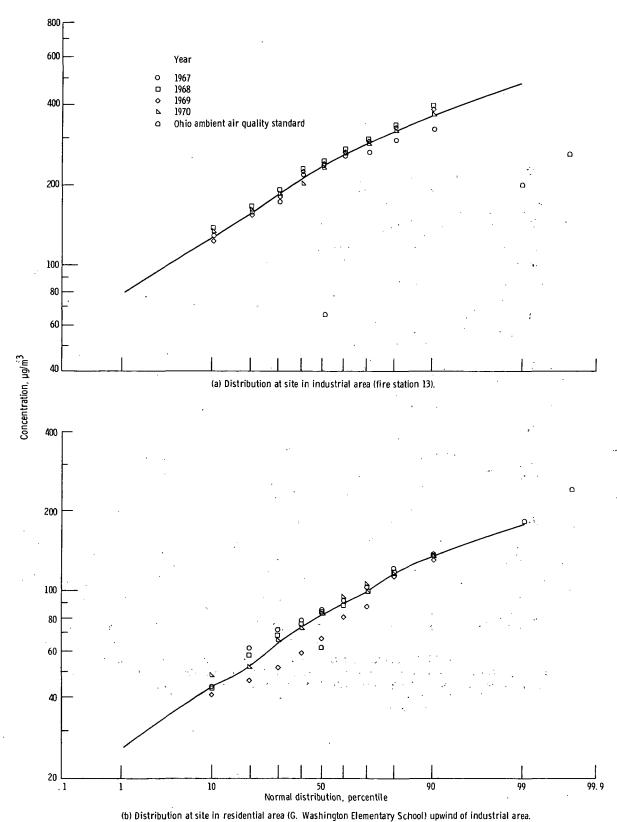


Figure 2. - Distribution of total suspended particulates by weight (24-hr sampling) plotted on log-normal graph.

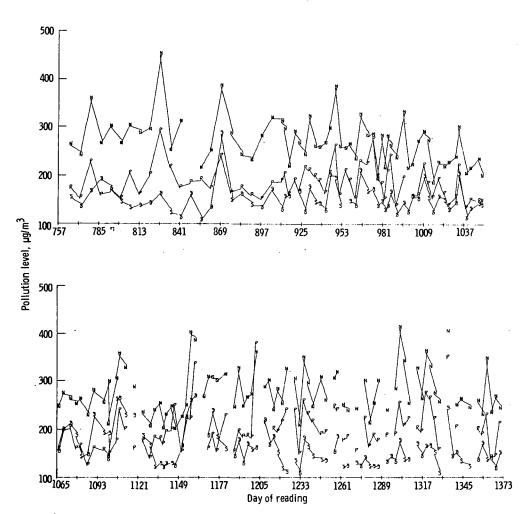


Figure 3. - Graphical presentation of data at J. F. Kennedy High School for all three measured pollutants. The abscissa is the day of the reading numbered consecutively from January 1, 1967 (e.g., day 731 is Jan. 1, 1969). The solid lines connect data points obtained at consecutive scheduled samplings. Gaps in the connecting lines indicate the absence of a reading (e.g., power failure, equipment failure, etc.).

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